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CLAIMS

[Claim(s)]

[Claim 1]Allocate two or more drums on which it had two or more identification information, and at the time of rotation stops of each of this drum. In a game device which will be in a great success state with a game position advantageous to a game person when a combination mode of identification information displayed corresponding to a display window formed in the front-face side turns into a special combination mode on an effective prize line set up beforehand, Allocate a liquid crystal display panel of a prescribed area in the front-face side of two or more of said drums, and said liquid crystal display panel, A game device changing a liquid crystal of a range corresponding to a part of each drum surface into a light transmission state, and forming [be / it / under / game / setting] said display window while liquid crystal display performed a predetermined simulation display before a start of a game.

[Claim 2]The game device according to claim 1, wherein said liquid crystal display panel performs said effective prize line in an identifiable predetermined line display by liquid crystal display into a game.

[Claim 3]The game device according to claim 2 characterized by making it said liquid crystal display panel change color of an effective prize line where the special combination mode concerned was displayed by said liquid crystal display when said special combination mode is displayed.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention allocates two or more drums on which it had two or more identification information, and at the time of the rotation stops of each of this drum. When the combination mode of the identification information displayed corresponding to the display window formed in the front-face side turns into a special combination mode on the effective prize line set up beforehand, a game position is related with the game device which will be in a great success state advantageous to a game person.

[0002]

[Description of the Prior Art]While having the drum on which two or more identification information was provided in the peripheral face from before three pieces, for example, Equip the front-face side of this drum with the front panel, and the display window which three identification information for example, in each drum can recognize visually from the front on this front panel is formed, In the prize line top where the combination display mode of the identification information displayed in the display window was validated of two or more prize lines at the time of the rotation stops of each drum, For example, when it becomes special combination display modes, such as "7, 7, 7", a game device which will be in a great success state with a game position advantageous to a game person is known.

[0003]

[Problem to be solved by the invention]By the way, in the conventional game device, in order that a means to perform a variable display might use a mechanism-type drum, when the game was not performed, it was only lacking [a part of identification information of the outside surface of the stopped drum] only in the variability currently displayed from the display window.

[0004]Therefore, it is difficult to advertize the game device strongly that it is hard to take out the difference from other game devices, and there was a problem that it was difficult to draw the interest of the game person who has chosen the game device which performs a game. Since a game person's operation was to some extent required when the game device concerned performs a game, for the beginner etc. who have not performed the game in not much such a game device, it was avoided in many cases.

[0005]This invention was made in order to solve an aforementioned problem, and it aims at the rather than thing for which the game device which can fully draw a game person's interest by having a liquid-crystal-display function in which the high display of interest can be performed is provided, only concerning not only the display on a drum but a game.

[0006]

[Means for solving problem]In order to solve an aforementioned problem, the invention according to claim 1, Allocate two or more drums on which it had two or more identification information, and at the time of the rotation stops of each of this drum. In the game device which will be in a great

success state with a game position advantageous to a game person when the combination mode of the identification information displayed corresponding to the display window formed in the front-face side turns into a special combination mode on the effective prize line set up beforehand, Allocate the liquid crystal display panel of a prescribed area in the front-face side of two or more of said drums, and said liquid crystal display panel, While liquid crystal display performed the predetermined simulation display before the start of a game, the liquid crystal of the range corresponding to a part of each drum surface is changed into a light transmission state, and said display window was formed [be / it / under / game / setting].

[0007]Into a game, said liquid crystal display panel may be made to perform said effective prize line in an identifiable predetermined line display by liquid crystal display.

[0008]When said special combination mode is displayed, it may be made for said liquid crystal display panel to change the color of the effective prize line where the special combination mode concerned was displayed by said liquid crystal display.

[0009]In before the start of a game according to invention concerning Claim 1, with the liquid crystal display panel allocated in the front-face side of two or more drums, From liquid crystal display, a predetermined simulation display is performed, on the other hand, the liquid crystal of the range corresponding to a part of each drum surface will be in a light transmission state, and a display window will be formed [be / it / under / game / setting]. According to invention concerning Claim 2, into a game, a liquid crystal display panel performs an effective prize line in an identifiable predetermined line display by liquid crystal display.

[0010]According to invention concerning Claim 3, a liquid crystal display panel, Since it was made to change the color of the effective prize line where the special combination mode concerned was displayed by liquid crystal display when a special combination mode was displayed, it can be made to recognize certainly that the special combination mode was displayed and in which effective prize line it was materialized.

[0011]

[Mode for carrying out the invention][A 1st embodiment of invention] The perspective view of the game device 1 as this embodiment of the invention is shown in drawing 1. The game device 1 is provided with the case 2 which constitutes the outline, and this case 2 comprises the case body 2A, a front case 2B attached to the front-face side center section so that opening and closing were possible, and the upper housing 2C attached to the front-face side upper part. The lock 29C for locking so that front case 2B may not open is installed in the right end middle of said front case 2B.

[0012]The game display 10 which consists of a LCD (liquid crystal display) transparent state change panel in which two or more liquid crystal display elements were allocated is formed in the front-face side upper part of said front case 2B in the state where it extended far back a little.

[0013]The variable display windows (display window) 11A, 11B, and 11C as three variable displays are formed in the center of this game display 10, and every three variable displays of the rotating drum device 50 on the backside are in sight through each variable display windows 11A, 11B, and 11C. A variable display device is constituted by the rotating drum device 50 and the variable display windows 11A, 11B, and 11C.

[0014]It risks on the left and sliding direction of the variable display window 11A, graphic display of the numeral part 12 (12a-12g) is carried out, and graphic display of "5", "10", "15", and the number of bets of is carried out to these each bet numeral part 12 (12a-12g). When graphic display of combination appointed display line a-g illustrated as a prize line corresponding to the number of bets by which graphic display is carried out to each bet numeral part 12 (12a-12g) is carried out and various prize modes are materialized, When the color of it and corresponding display line a-g changes, it is indicated clear by prize mode formation.

[0015]Under said bet numeral part 12, graphic display of the start switch display 14 is carried out. Under each variable display windows 11A, 11B, and 11C, graphic display of the stop displays 15a-15c and every one pair each of stop switch displays 25a-25c is carried out.

[0016]The completion display 13A is made the left of the game display 10, and graphic display of the score display part 13B is carried out to an upper center, respectively. Above a right direction, the reservoir numeral part 16 as a storage number displaying means is made the bottom of it, and graphic display of the settlement-of-accounts switch display part 17 is further carried out for the injection switch display part 23 and the odd ball display 24 to the lower part, respectively. Graphic display of the auto display 18a and the auto switch display 18b is carried out to a direction [lower right] part. Graphic display of the taking-in switch display parts 27a-27e and the taking-in numeral parts 19a-19e which are illustrated as a selecting means is carried out to the lower part in the state corresponding to 1 to 1.

[0017]The game informative label part 28 of a dot-matrix display type is formed above the game display 10, and the display panel 252 is installed above the ball saucer 20.

[0018]When the taking-in switch display part 27a of the aforementioned taking-in switch display parts 27a-27e is a switch which sets the number of bets of a ball as "5" and this taking-in switch display part 27a is pushed, While a sound effect is generated, color of combination appointed display line b-b of the bet numeral part 12c and the middle where the number of bets of the taking-in numeral part 19a game display 10 "5" was displayed changes. At the time of this number of bets "5", it is supposed that only combination of a display on combination appointed display line b-b of a middle sequence is effective as a game result.

[0019]When the taking-in switch display part 27b is a switch which sets the number of bets of a ball as "10" and this taking-in switch display part 27b is pushed, While a sound effect is generated, color of combination appointed display line b-b of the bet numeral part 12c and the middle where the number of bets of the taking-in numeral part 19b and the game display 10 "5" was displayed changes, and also. Color of combination appointed display line f-f of the bet numeral part 12f as which the number of bets "10" was displayed, and the shape of upper inverse triangle changes. At the time of this number of bets "10", combination of a display on combination appointed display line b-b of a middle sequence becomes effective, and also it becomes effective [combination of a display along a V character-like line of combination appointed display line f-f].

[0020]When the taking-in switch display part 27c is a switch which sets the number of bets of a ball as "15" and this taking-in switch display part 27c is pushed, While a sound effect is generated, the color of combination appointed display line b-b of the bet numeral parts 12c and 12f as which the number of bets of the taking-in numeral part 19c and the game display 10 "5" and "10" were displayed, and a middle sequence, and combination appointed display line f-f of the shape of upper inverse triangle changes, and also. The color of combination appointed display line g-g of the bet numeral part 12g as which the number of bets "15" was displayed, and lower triangular shape changes. At the time of this number of bets "15", the combination of the display along the V character-like line of combination appointed display line f-f of the combination of the display on combination appointed display line b-b of a middle sequence and the shape of upper inverse triangle becomes effective, and also. It becomes effective [the combination of the display along the reverse V character-like line of combination appointed display line g-g of a lower triangle].

[0021]When the taking-in switch display part 27d is a switch which sets the number of bets of a ball as "20" and this taking-in switch display part 27d is pushed, The bet numeral parts 12c, 12f, and 12g as which the number of bets of the taking-in numeral part 19d and the game display 10 "5", "10", and "15" were displayed while the sound effect was generated, The color of combination appointed display line b-b of the middle, combination appointed display line f-f of the shape of upper inverse triangle, and combination appointed display line g-g of lower triangular shape changes, and also. The color of combination appointed display line a-a of the bet numeral parts 12b and 12d as which the number of bets "20" was displayed, an upper row sequence, and a lower-berth sequence, and c-c changes. The combination of the display [time of this number of bets "20"] on combination appointed display line b-b of a middle sequence, The combination of the display along the reverse V character-like line of combination appointed display line g-g of the combination of the

display along the V character-like line of combination appointed display line f-f of the upper inverse triangle and a lower triangle becomes effective, and also. The combination of the display on combination appointed display line a-a of an upper row sequence and a lower-berth sequence and b-b becomes effective.

[0022]When the taking-in switch display part 27e illustrated as the maximum selecting means is a switch which sets the number of ball bets as "25" and this taking-in switch display part 27e is pushed, The bet numeral parts 12c, 12f, 12g, 12b, and 12d as which the number of bets of the taking-in numeral part 19e and the game display 10 "5", "10", "15", and "20" were displayed, Combination appointed display line b-b of the middle, combination appointed display line f-f of the shape of upper inverse triangle, The color of combination appointed display line a-a of combination appointed display line g-g of lower triangular shape, an upper row sequence, and a lower-berth sequence and c-c changes, and also. ** and upward-slant-to-the-right slant combine [the bet numeral parts 12a and 12e and the lower right where the number of bets "25" was displayed], and the color of appointed display line d-d and e-e changes. The combination of the display [time of this number of bets "25"] on combination appointed display line b-b of a middle sequence, The combination of the display along the V character-like line of combination appointed display line f-f of the upper triangular shape, ** and slant upward slanting to the right combine, and the lower right besides the combination of the display on combination appointed display line a-a of the combination of the display along the reverse V character-like line of combination appointed display line g-g of a lower triangle, an upper row sequence, and a lower-berth sequence and c-c becomes effective [the combination of the display on appointed display line d-d and e-e].

[0023]The game informative label part 28 of a dot-matrix display type is formed in the front-face side of said upper housing 2C as an information display. A dot-matrix indication of an informative label (message), misbranding, etc. about a game is given at this game informative label part 28, respectively.

[0024]The number setting device 29a of rates and the close reset pin inserting part 29b for adjusting the probability of occurrence of "great success" are provided by inserting and turning a key (graphic display abbreviation) to a left of said prize mode display 28a.

[0025]The ball feed port 1a is established in a upper wall part of the case body 2A, and the ball saucer 20 is projected and formed in a front back lower part of front case 2B at a near side. The ball exit 21 is established in an upstream inner of this ball saucer 20, and the downstream of the ball saucer 20 leads to game device 1 inside via an entrance slot mentioned later. The ash pan 1b is installed in left-hand side of a front face of the case body 2A lower part.

[0026]The following game actions are performed by control means (after-mentioned), and mechanical and electric constitution, such as a computer system by which a game device by which outline composition was carried out as mentioned above was set as it.

[0027]First, in a state in front of a game to which a power supply was supplied, the rotating drum device 50 (after-mentioned) for variable displays as one component of a variable display device on the game display 10 back side has stopped, The injection switch display part 23 projects on the game display 10, and also an advertising display and a simulation (simulation) display have projected on the game display 10 whole.

[0028]If it is put into a game ball (graphic display abbreviation) by the saucer 20 in this state and the injection switch display part 23 is pushed, while a game ball will be swallowed into the game device 1 from the entrance slot on the right-hand side of the saucer 20 (after-mentioned), An advertising display, a simulation display, etc. of the game display 10 disappear, As the variable display windows 11A, 11B, and 11C, a center serves as a transparent window and around it, Newly The bet numeral part 12 (12a-12g), combination appointed display line a-g, The start switch display 14, the stop displays 15a-15c, the stop switch displays 25a-25c, The completion display 13A, the score display part 13B, the injection switch display part 23, the odd ball display 24, the reservoir numeral part 16, the settlement-of-accounts switch display part 17, the auto display 18a, Graphic display of the auto

switch display 18b, the taking-in switch display parts 27a-27e, and the taking-in numeral parts 19a-19e is carried out.

[0029]The game ball swallowed in the game device 1 is carried out within the limits to a prescribed number (for example, 750 pieces), and is memorized by the storage parts store (RAM811) which the understood pitch count illustrates as a memory measure of a control device (after-mentioned). Digital display of the storage number is carried out to the reservoir numeral part 16. When the understood pitch count exceeds a predetermined number (for example, 750 pieces), the ball of a part which exceeded is returned into the ball saucer 20 from the ball exit 21. Even if the understood pitch count is below a prescribed number (for example, 750 pieces), when the understood pitch count is not a multiple of "5", When the excessive odd ball arises, the color of the odd ball display 24 changes, it tells that the odd ball arose, and the odd ball is returned into the saucer 20 from the ball exit 21. When [the] returned, the odd ball display 24 returns to the original color.

[0030]If one of the taking-in switch display parts (27a-27e) corresponding to the number of bets which a game person wishes is pushed in this state, The color of the taking-in numeral part (19a-19e) corresponding to the pushed taking-in switch display part changes, the game ball of the number of bets is incorporated, and the digital display of the reservoir numeral part 16 turns into digital display from which only the part of the number of bets was subtracted. Simultaneously, it combines with the bet numeral part 12 (12a-12e) corresponding to the number of bets, and the appointed display line (a-g) is turned on.

[0031]In this state, if a game person operates the start switch display 14, while the color of the start switch display 14 changes, the color of the stop displays 15a-15c will change, Three internal drums (after-mentioned) start rotation independently mutually, and change of the display in the variable display windows 11A and 11B and 11C is started in connection with it. While a drum (after-mentioned) is suspended sequentially from the left after specified time elapse from the time of the start and the stop displays 15a-15c are returned to the original color, it is decided sequentially from the display of the left variable display window 11A. It corrects, Before the specified time elapse, by a game person. when the stop switch displays 25a-25c are pushed, rotation of the drum in the variable display window (11A, 11B, 11C) on the pushed stop switch display (15a, 15b, 15c) is suspended — the variable display window (11A and 11B.) 11C) While change of an inner display is suspended and deciding, the stop displays 15a-15c return to the original color. An order which the stop switch display (25a, 25b, 25c) pushes may be performed in which order.

[0032]When a game person repeats the above-mentioned operation, a game is performed, but. The result of the game, The variable display windows 11A and 11B at the time of a stop, the combination of the display in 11C (when a game person pushes a taking-in switch display part (27a-27e) at the time of the start of the game.) the combination of the display along the specified combination appointed display line (a-g) — restricting, while a sound effect will be emitted and the number of awarded balls will be displayed on the score display part 13B, if it corresponds to either of the prize modes defined beforehand, The color of the materialized display line (either of a-g) changes further as a prize mode formation display, and the awarded balls of the number according to the prize mode are awarded. In that case, when it corresponds to two or more prize modes, two or more sorts of awarded-balls numerals are made by the score display part 13B, and the awarded balls of the total number adding the number of awarded balls to each prize mode are awarded to it. While the new number of reservoirs which added the number of awarded balls to the number of reservoirs in front of the game is memorized by the storage parts store of a locking device (after-mentioned) until the reservoir numeral of the reservoir numeral part 16 serves as a predetermined number (for example, 750 pieces), an updating indication of the awarded balls is given at the reservoir numeral part 16.

[0033]In that case, when the reservoir numeral of the number memory of reservoirs in front of the game (the number memory of reservoirs) and the reservoir numeral part 16 exceeds "750." The awarded balls exceeding the "750" of a part are emitted into the saucer 20 via the ball exit 21, and the reservoir numeral of the number memory of reservoirs and the reservoir numeral part 16 is

returned to "750."

[0034]When the combination of the display in the variable display windows 11A and 11B and 11C turns into combination (for example, "7, 7, 7" should put together) of the display which generates "great success" especially as a result of the game, "great success" occurs and the sound effect which tells generating of the "great success" is emitted. Simultaneously, a score display (awarded-balls numeral) is made by the score display part 13B, awarded-balls discharge of a predetermined number (for example, 90 pieces) is performed, and it shifts to the bonus game of the following "great successes" after an appropriate time.

[0035]At the time of the bonus game of this "great success", the color in the auto display 18a changes, The number of incorporation as the number of bets per time is automatically set to "5", and the color of the bet numeral part 12c as which "5" was displayed, and combination appointed display line b-b of the middle changes, and it becomes effective [the combination on combination appointed display line b-b of the middle]. the combination (for example, "JAC, JAC, JAC" should put together) of a display predetermined in during the period of this "great success" to the combination appointed display line b-b top of this middle — a set — easy — it becomes and that combination gathers — it is alike and the prize balls of a predetermined number (for example, 90 pieces) are awarded. Such a bonus game will be performed to prescribed frequency (for example, 66 times) during "the great success." However, before completing the prescribed frequency, when the number of awarded-balls acquisition of the game person in the period of the "great success" (part which actually increased) reaches a prescribed number (for example, 4000 pieces), it is returned to the usual game condition at the time. When other prize modes occur during the game of this "great success", also at the time of a game, the same awarded balls are usually awarded.

[0036]The combination of the display which the combination of the display in the variable display windows 11A and 11B and 11C into the usual game makes generate "per inside." When the display of "BAR, BAR, BAR", and "*", *, *" will be (for example, should put together), the sound effect which "per inside" occurs and tells generating "per inside" is emitted. Simultaneously, a score display is made by the score display part 13B, awarded-balls discharge of a predetermined number (for example, 90 pieces) is performed, and it shifts to the bonus game "per inside" after an appropriate time. [following]

[0037]The bonus game "per inside" as well as the bonus game of the above "great success" is performed. [this] However, the number of times and the awarded-balls acquisition number of a bonus game are restricted rather than being able to set to the bonus game of the above "great success", for example, number-of-times restrictions of a bonus game are 15 times, and awarded-balls acquisition number restrictions are made into 1000 pieces. [/ "per inside"] [this]

[0038]When the combination of the display in the variable display windows 11A and 11B and 11C into the usual game turns into combination (for example, the picture of "lemon, lemon, and lemon" should put together) of the display which generates "per smallness", the sound effect which "per smallness" occurs and tells generating "per smallness" is emitted. Simultaneously, a score display is made by the score display part 13B, awarded-balls discharge of a predetermined number is performed, and it shifts to the bonus game "per smallness" after an appropriate time.

[0039]The bonus game "per smallness" as well as the bonus game of the above "great success" is performed. [this] However, the number of times of the bonus game "per smallness" is restricted compared with the number of times of a bonus game in the above "per inside", for example, a bonus game is ended once by a limitation. [this]

[0040]Usually, when the combination of the display in the variable display windows 11A and 11B and 11C into a game becomes a mode which generates other general prize modes, the score display according to the prize mode is made by the score display part 13B, awarded balls are awarded to it, and the above bonus games are not performed in it.

[0041]According to advance of the above-mentioned game, a message indicator is made by the game informative label part 28 in a dot display.

[0042]If the auto switch display 18b is pushed after pushing a desired taking-in switch display part (27a-27e), when it is troublesome to push the taking-in switch display parts 27a-27e one by one, to risk them into a game, and to perform several sets, While the color of the taking-in numeral part corresponding to the taking-in switch display part changes, the color of the auto display 18a will change and it will be in an auto state. A game will be continuously performed after this auto setting out with that set number of bets. If a game person pushes the auto switch display 18b once again to cancel the auto state, the original color will be returned for the auto display 16, and an auto state will be canceled.

[0043]When many awarded balls are discharged by generating of a prize mode and a schedule ejecting number is reached, graphic display of the character of completion is carried out to the completion display 13A.

[0044]If the settlement-of-accounts switch display part 17 is pushed when a game person wants to pay, the ball of the number currently displayed on the reservoir numeral part 16 and the same number will be returned into the saucer 20 via the ball exit 21, and the display of the reservoir numeral part 16 will also return to "zero." Simultaneously, the display of the game display 10 returns to an advertising display or a simulation display.

[0045]The vertical section side view in the state where the above-mentioned game device 1 was installed in the island facility 600 of an amusement center is shown in drawing 2.

[0046]The drum mounting base 2a is formed in the case body 2A of the game device 1. The rotating drum device 50 is installed in this drum mounting base 2a upper part, and the control device 800A is installed in the bottom.

[0047]The terminal box 41 which performs an exchange of a controlling device (outside of a figure) and data is installed in the lower posterior-wall-of-stomach part in the case body 2A. The game ball taking-in equipment 42 which performs management through figures of the game ball taken in via an entrance slot (after-mentioned) from the above-mentioned saucer 20 is installed in the before [the lower part] side in the case body 2A. After the incorporated game ball is calculated by the taking-in equipment 42, it is collected on the recovering spout 601 on the island facility 600 lower back side via the tap hole 1b of the case body 2A back side lower part. The storage tank 43 for awarded balls is installed in the front wall part of the upper part in the case body 2A, and the lead-out conduit 44 which makes awarded balls draw in this storage tank 43 is installed in the lower part. The above-mentioned ball feed port 1a is established in the upper wall part of the case body 2A.

[0048]The above-mentioned game display 10 is formed in the state where it drew in the position corresponding to the front of said rotating drum device 50 a little in the upper part of frame-front-cover 2B.

[0049]The transparent panel 251, the display panel 252, the fluorescent lamp 47, and the ball saucer 20 grade are installed in the front-face side of the lower part of frame-front-cover 2B. Inside [lower] frame-front-cover 2B corresponding to the position in which the ball saucer 20 is installed, the ball derivation port 48 which passes to the above-mentioned ball exit 21 (drawing 1) is formed.

[0050]***** 700 is installed in the upper part in the island facility 600, and ***** 701 is installed in the lower part of this ***** 700. The shot 702, the catch equipment 703 with a calculating machine, and the guide 704 are attached to the lower part of ***** 701 in order. Said catch equipment 703 with a calculating machine was fixed to the back side of the island facility 600, and said guide 704 has resulted above the storage tank 43 for awarded balls via the above-mentioned ball feed port 1a of the case body 2A upper part. And while management through figures of the reserve ball in ***** 700 is carried out by the catch equipment 703 with a calculating machine via ***** 701, the shot 702, the catch equipment 703 with a calculating machine, and the guide 704, a ball is caught in the storage tank 43.

[0051]the ball which fell from the above-mentioned storage tank 43 in the back side upper part of the case body 2A is made to flow into the back side of the case body 2A, and are made to collect to up to the recovering spout 601 of the island facility 600 back-side lower part — it falls and the ball

collection port 1c is formed.

[0052]The back side exploded perspective view of front case 2B is shown in drawing 3.

[0053]The opening 210 for LCD panel installation is formed in the front side upper part of front case 2B, and the opening 220 for display panel installation illustrated as a window part is formed in the lower part. The support 201,201,203,203 for attachment protrudes on the right-and-left back side of the opening 210,220, respectively, and the stud bolt 202,202,204,204 is implanted in the central part of these each support 201,201,203,203 for attachment.

[0054]And via the back side to the rubber packing 230 in the upper opening 210, The display panel 252 is arranged for LCD panel 235 illustrated as the front panel via the transparent panel 251 at the lower opening 220, respectively from the back side, It is being fixed to the back side of front case 2B so that it may explain to those back sides in detail in the state where the ***** oscillating perception frame 240 has been arranged, to a predetermined interval later.

[0055]The entrance slot 20b is formed in the before [the lower part] side of front case 2B, and the game ball taking-in equipment 42 is attached to the back side of this entrance slot 20b.

[0056]The fixing structure of LCD panel 235 is shown in drawing 4 as a decomposition vertical section side view.

[0057]As shown in drawing 3 and drawing 4, the inside covers the perimeter, the opening 210 for game display setting out of front case 2B is bent back, and the point is the packing fitting part 211.

[0058]Said rubber packing 230 is formed in the rectangular frame shape from which the inside became an opening as shown in drawing 3, The step 232 for installation for the fitting groove 231 which can carry out outer fitting to the packing fitting part 211 of said front case 2B as shown in drawing 4 to install LCD panel 235 shown in drawing 4 in the rear inside covers the whole circumference, respectively, and is provided in the front side.

[0059]Said LCD panel 235 serves as a form size which can be stored in said step 232 for installation of said rubber packing 230, and the bolt through hole 237a which can fit into said stud bolt 202 of front case 2B is formed in the right-and-left position. Other composition of this LCD panel 235 is described in detail later.

[0060]Said oscillating perception frame 240 is formed in the rectangular frame shape which has the opening 241,242, respectively in the position corresponding to said LCD panel 235 and the display panel 252. The front side around [outside] the upper part opening 241 serves as the section L character-like concave part 243, and this concave part 243 is greatly formed the 1 surroundings from the outside of said rubber packing 230. Into said concave part 243, as shown in drawing 4, two or more vibration switches 244 are suitably installed with arrangement. The bolt through hole 245 which can fit into said stud bolt 202 of front case 2B is formed in the right-and-left position of the oscillating perception frame 240.

[0061]The marks 251a, 252a, 253, and 254,255,256,257 among drawing 4, It is the rubber washer, the rubber washer, the coil spring, the rubber washer, the rubber washer, iron washer, and collar nut which constitute the mounting means for attaching the rubber packing 230, LCD panel 235, and the oscillating perception frame 240 to front case 2B, respectively.

[0062]The vertical section side view in the state where LCD panel 235 was attached to front case 2B is shown in drawing 5.

[0063]The game display 10 is installed in the upper part opening 210 of front case 2B as follows.

[0064]That is, while the rubber packing 230 is arranged first at the state where outer fitting of the fitting groove 231 was carried out to the packing fitting part 211 of the opening 210, outer fitting of the rubber washers 251a and 251 is carried out to the stud bolt 204,204. Then, LCD panel 235 is stored in the step 232 for installation by the side of the back of the rubber packing 230 by carrying out outer fitting of the bolt through holes 237a and 237a to the stud bolt 204,204. After that, after outer fitting of the rubber washer 252a, the coil spring 253, and the rubber washer 254 is carried out to the stud bolt 204 at order, the oscillating perception frame 240 is installed in the bolt through hole 245, after the stud bolt 204 has let it pass.

[0065]And by carrying out outer fitting of the rubber washer 254 and the iron washer 256 to the stud bolt 204,204 on either side at order, and screwing the collar nut 257 in the stud bolt 204 on either side after an appropriate time after that, LCD panel 235 and the oscillating perception frame 240 are attached to the back side of front case 2B via the rubber packing 230.

[0066]In the state where it was attached, the sensing piece 244a of the vibration switch 244 is [predetermined interval] separated from LCD panel 235, and the coil spring 253 is shrunken moderately and holds moderate cushioning properties.

[0067]In this state, if LCD panel 235 is strongly pushed by the game person, this LCD panel 235 will resist the power of the coil spring 253, and will retreat. One [the microswitch 244] with the retreat when LCD panel 235 carries out elastic change of the sensing piece 244a of the microswitch 244, While the input signal is inputted into the control device 800A, and misbranding is made by the game informative label part 28 and changing into the state in which a game is impossible, Since a control center (outside of a figure) is reached, injustice is detected immediately and the important occurrence of LCD panel 235 being damaged can be prevented.

[0068]The setting structure of LCD panel 235 is shown in drawing 6 in detail as a partial decomposition perspective view.

[0069]In the figure, after the rubber packing 230 is first attached to the packing fitting part 211 of the opening 210, LCD panel 235 is attached via the rubber washer 251a. Then, the oscillating perception frame 240 is attached via the rubber washer 252a, the coil spring 253, and the rubber washer 254. And after that, the rubber washer 255 and the iron washer 256 intervene, and the rubber packing 230, LCD panel 235, and the oscillating perception frame 240 are being fixed to the back side of front frame 2B by screwing the collar nut 257 in the stud bolt 202.

[0070]The structure for attachment of LCD panel 235 is shown in drawing 7.

[0071]As LCD panel 235 is shown in the figure, it comprises the metal flask 237 for reinforcement attached to the circumference of the main part 236 of an LCD panel (liquid crystal display panel), and this main part 236, and said bolt through holes 237a and 237a are formed in the right and left of the metal flask 237.

[0072]The display information by which graphic display is carried out to the main part 236 of an LCD panel of LCD panel 235 during a game action, and its display position are shown in drawing 8.

[0073]The main part 236 of an LCD panel is made from the part or component with the transparent whole, and the variable display windows 11A, 11B, and 11C as three transparent variable displays appear in the center at the time of a game.

[0074]It risks on the left of the variable display window 10, graphic display of the numeral part 12 (12a-12g) is carried out, and graphic display of "5", "10", "15", and the number of bets of is carried out to these each bet numeral part 12 (12a-12g).

[0075]Graphic display of combination appointed display line a-g corresponding to the number of bets by which graphic display is carried out to each bet numeral part 12 (12a-12g) is carried out.

[0076]Under said bet numeral part 12, graphic display of the start switch display 14 is carried out. Under each variable display windows 11A, 11B, and 11C, graphic display of the stop displays 15a-15c and every one pair each of stop switch displays 25a-25c is carried out.

[0077]The completion display 13A is made the left of the main part 236 of an LCD panel, and graphic display of the score display part 13B is carried out to an upper center, respectively. The reservoir numeral part 16 is made the bottom of it, and graphic display of the settlement-of-accounts switch display part 17 is further carried out for the injection switch display part 23 and the odd ball display 24 to the lower part in the right direction upper part, respectively. Graphic display of the auto display 18a and the auto switch display 18b is carried out to the right direction lower part. Graphic display of the taking-in switch display parts 27a-27e and the taking-in numeral parts 19a-19e is carried out to the lower part in the state corresponding to 1 to 1.

[0078]A perspective view shows the structure of the main part 236 of an LCD panel to drawing 9.

[0079]The main part 236 of an LCD panel serves as a transparent plywood on which the dot-matrix

plotting board 236A (back side) and the matrix switch board 236B (side front) were piled up, as shown in drawing 9. The LCD panel control device 236C illustrated as a liquid-crystal-display control means is attached to the one side part. With the control device 800A mentioned later, the LCD panel control device 236C constitutes a liquid-crystal-display control means, and controls the display of the game display 10 which consists of a LCD (liquid crystal display) transparent state change panel in which the liquid crystal display element was allocated. For example, the display of the above-mentioned variable display windows 11A, 11B, and 11C, the display of the bet numeral parts 12a-12g, the display of combination appointed display line a-g, etc. are controlled.

[0080] And a dot-matrix indication of the various displays etc. which were shown in drawing 8 is given at said dot-matrix plotting board 236A. Matrix arrangement of the switch group of matrix arrangement by which a position is decided by the X coordinate shown in the figure and a Y coordinate is carried out to the matrix switch board 26B.

[0081] By the way, pushing the switch display parts 14, 17, 23, 25a-25c and 27a-27e (drawing 8) displayed on above-mentioned LCD panel 235, The above-mentioned matrix switch board 236B will be pushed, it is decided by the X coordinate (0, 1, 2, ...) and Y coordinate (0, 1, 2, ...) of the matrix switch plotting board 236B any the pushed switch display part is, and the control corresponding to it is made.

[0082] Said LCD panel control device 236C to the below-mentioned control device 800A illustrated as a liquid-crystal-display control means. The signal (SW ON signal), one [either of said switch display parts 14, 17, 23 25a-25c and 27a-27e (drawing 8)], While transmitting X coordinate signal and the Y coordinate signal for specifying the switch display part [one / a part], the role which carries out graphic display to the dot-matrix plotting board 236A in response to the video signal from the control device 800A (after-mentioned) is played.

[0083] The exploded perspective view which took out the rotating drum device 50, the control device 800A, the terminal box 41, and the electric power unit 810 grade is shown in drawing 10 from the inside of the case body 2A which constitutes the game device 1.

[0084] As for the case body 2A, the outline is constituted by Kamiita part 2b, the side plate parts 2c and 2d on either side, the bottom plate part 25e, the backboard part 2f, and the front inferior lamella part 2g. The above-mentioned drum mounting base 2a is installed in the middle in the case body 2A. And the above-mentioned ball feed port 1a is established in Kamiita part 2b, the account of the upper falls in the backboard part 2f, and the ball collection port 1c is formed. The above-mentioned tap hole 1b is formed between the lower end of the backboard part 2f, and the bottom plate part 2e.

[0085] The three pulse motors 515 and 525 which give torque to the rotating drum (drum) 511, 521, 531 of the variable display units 51, 52, and 53 in which the rotating drum device 50 was installed in the housing 55 and this housing 55, and these variable display units 51, 52, and 53, It was attached as the upper part of 535 and the variable display units 51, 52, and 53 was covered, and it fell, and has the ball invasion prevention cover 54. And as shown in drawing 2, the front side of the bottom plate 551 of the housing 55 is installed on the drum mounting base 2a in the state where the predetermined angle ($=\alpha^{**}$) rose. So that it may fall, the ball invasion prevention cover 54 may cover the upper part of the rotating drum device 50 thoroughly to the figure as a chain line shows, and the ball which fell from the storage tank 43 grade may not enter in the rotating drum device 50 in the state where it was installed, The role which it falls, is led to the ball collection port 1c, and are made to collect to up to the recovering spout 601 of an island facility 600 back-side lower part is played.

[0086] The control device 800A is attached to the drum mounting base 2a bottom in the case body 2A, and the electric power unit 810 is installed on the bottom plate part 2e in the case body 2A.

[0087] The injection signal relay connector 412a for connecting with an external controlling device at the terminal box 41, While the expenditure signal relay connector 412b, the accessory (size, inside, smallness) signal relay connector 412c and the checking drum test signal feed-thru connector 412d

at the time of an assembly, and the drum driving signal feed-thru connector 412e are formed, the electric power switch 411 is attached. 1 to 1 is made to correspond to the left of these each feed-thru connectors 412a-412e, and the indication plates 411a-411e in which the character of "an injection", "paying out" out, the "accessory", the "drum stop", and the "drum drive" was displayed are installed. And this terminal box 41 is attached inside 2 f of backboards of the case body 2A.

[0088]The partial decomposition perspective view of the rotating drum device 50 stored in the case body 2 is shown in drawing 11.

[0089]The drum housing 55 comprises the bottom plate part 551 and the back plate part 552 which stood up to the rear end part of this bottom plate part 551 at the abbreviated perpendicular.

[0090]The bolt through holes 551a-551c and 552a-552c for variable display unit attachment are formed in the bottom plate part 551 and the back plate part 552, respectively, and the couple protrusion of the positioning part 551d which positions the central variable display unit 52 is carried out in the center of the bottom plate part 551. The concave wiring board insert portion 553 is formed in the near-side end of the bottom plate part 551, and the wiring board insertion groove 553a is formed in the facing wall section under this wiring board insert portion 553.

[0091]The variable display unit 51 (52, 53) comprises the rotating drum 511 supported in the housing 512,513 of a right-and-left couple, and these housings 512,513 enabling free rotation.

[0092]The housing 512 of one of these is provided with the side plate part 512a, the backboard part 512b, and the bottom plate part 512c, and the pivot 514 protrudes in the center of the inside of the side plate part 512a. The attaching piece part 512d is formed in the upper row, the middle, and the lower-berth position of an inner side end of the backboard part 512b in parallel with the side plate part 512a, it ****s in each attaching piece part 512d, and the hole 512e is formed. It is made to correspond to the backboard part 512b with the position of the bolt through hole 552a of the back plate part 552 of said drum housing 55, and ****s, and 512 f of holes are provided, and it is made to correspond to the bottom plate part 512c with the position of the bolt through hole 551a of the bottom plate part 551 of said drum housing 55, and ****s, and 512 g of holes are provided.

[0093]Another housing 513 is provided with the side plate part 513a and the backboard part 513b. The pulse motor 515 as a driving source is installed in the center of the side plate part 513a, and as shown in drawing 12 in detail, the transmission piece 515b protrudes on the point of the axis of rotation 515a of the pulse motor 515. The drum position detector 516 is installed in the position which is distant from the center of the side plate part 513a inside. It is made to correspond to the backboard part 513b with the position of the bolt through hole 552a of the back plate part 552 of said drum housing 55, and ****s, and the hole 513c is formed, the side plate part 513a is made to correspond to the position of the screw-thread hole 512e of the attaching piece part 512d of said housing 512, it ****s, and 513 d of holes are provided.

[0094]The lead 517 of said pulse motor 515 and the drum position detector 516 is attached firmly by the Cordova inda 517a in the inside of the side board 513a, as shown in drawing 12, and as shown in drawing 4, the connector 517b is attached to the lead 517.

[0095]Said rotating drum 511 is provided with the tubed part 511e by which integral moulding was carried out via the central boss section 511a, this boss section 511a, and the arm part 511b, and the band-like discrimination expression component 518 continues for 360 degrees, and it is attached to the periphery of the tubed part 511e. Fitting of said boss section 511a is carried out to said pivot 514 and the axis of rotation 515a of the pulse motor 515, and rotational motion power is transmitted from the pulse motor 515. While 511 f of bosses are formed in the boss section 511a, 511 g of fitting grooves which engage with the transmission piece 515b of the axis of rotation 515a are formed.

[0096]The detecting piece 511d detectable with said drum position detector 516 protrudes on one of said the arm parts 511b. With rotation of the rotating drum 511, when the detecting piece 511d is detected by the drum position detector 516, rotation of the rotating drum 511 is detected.

[0097]The flange like parts 511h and 511i are formed in the both ends of said tubed part 511e, and said discrimination expression component 518 is attached among these flange like parts 511h and

511i.

[0098]In the surface of said discrimination expression component 518, the various displays of characters, such as "7" and "BAR", a "watermelon", "lemon", the picture of a "bell", etc. are made for every constant interval.

[0099]And fitting of the boss section 511a of the rotating drum 511 is carried out to the pivot 514 and the axis of rotation 515a of the pulse motor 515, and by supporting the rotating drum 511 from both sides by the housings 512 and 513, where unitization is carried out, it is installed on the drum housing 55.

[0100]It is attached where the backboard part 513b of the housing 512 is piled up inside the backboard part 513b of the housing 513, as it is shown in drawing 13, when attaching the variable display unit 51 (52, 53) to the drum housing 55.

[0101]Thus, the three variable display units 51, 52, and 53 are installed in the state where it separated the constant interval every, on the drum housing 55. In that case, especially the central variable display unit 52 is installed in the state where it was positioned so that it might be settled in positioning part 551d-551d on the bottom plate 551 of the drum housing 55.

[0102]On the wiring board 554, 555 d is mutually installed with the contact buttons 554a-554c at switch-on, To the contact button 554a, the connector 517a attached to the pulse motor 515 of the 1st variable display unit 51 and the lead 517 of the drum position detector 516, To the contact button 554b, the connector 527a attached to the pulse motor of the 2nd variable display unit 52 and the lead 527 of a drum sensor, The connector 537a attached to the pulse motor of the 3rd variable display unit 53 and the lead 537 of a drum sensor is connected to the contact button 554c, respectively. The input and output connectors 816 attached to the lead 815 of the control device 800A are connected to the contact button 555d.

[0103]By carrying out slide insertion of the wiring board 554 of the above-mentioned composition from a transverse direction all over the insertion groove 553a of the wiring board insert portion 553 of the drum housing 55, it is installed during the wiring board insert portion 553.

[0104]The back mechanism of the game device 1 is shown in drawing 14 as an explanatory view.

[0105]The upper tank 43 which stores a reserve ball (prize balls before expenditure) is installed in the upper part of the rear face of the game device 1. Besides, in the tank 43, when the quantity of the reserve ball in the tank 43 is detected and the quantity of that reserve ball decreases, the dog sensor 431 which takes out the insufficient signal of a reserve ball to a controlling device (outside of a figure), and requires supply of a reserve ball is installed. The step board lever 432 given the rotation returning force to the direction which makes the pin 432a with an axis the lower part in this upper tank 43, and in which a free edge side goes up with the return spring of a graphic display abbreviation is installed, and the completion detector 433 is installed directly under it. If the step board lever 432 goes up and the completion detector 433 detects it, it will be told that the detecting signal was inputted into the controlling device besides a figure, and the discharge predetermined value of the ball was completed.

[0106]As a downstream opening of the above-mentioned upper tank 43 is attended, the lead-out conduit 44 is connected. This lead-out conduit 44 makes a U-turn, carrying out a declivity gently, it is a form which follows this at that flowing-down end, and the recovering spout 441 and the awarded balls emission chute 442 are installed.

[0107]awarded balls which flow in the middle of said lead-out conduit 44 in this lead-out conduit 44 are tamed — it carries out [****] and 443,444 is installed. The awarded-balls discharge detector 445 which detects that discharge of awarded balls is performed near the trailer of the lead-out conduit 44, and the solenoid-type awarded-balls exhaust (discharge solenoid) 446 awarded-balls discharge is made to perform are installed. The solenoid-type ball omission switching arrangement (ball omission change solenoid) 447 which switches whether a ball is poured to which [of the recovering spout 441 and the awarded balls emission chute 442] side is installed in a fork road of the recovering spout 441 and the awarded balls emission chute 442.

[0108]Carrying out the opening of the lower end part of the recovering spout 441 on the recovering spout 601 (drawing 2) of the island facility 600, a lower end part of the awarded balls emission chute 442 is open for free passage with the ball exit 21. The overflow detector 448 is installed in a downstream of the awarded balls emission chute 442, When one cup of prize balls collect into the saucer 20 and prize balls collect even in a downstream into the awarded-balls lead-out conduit 442, it is detected by the detector 448, an overflow indicator lamp of a graphic display abbreviation, etc. light up, and a game person is told about the state.

[0109]At the right end of the upper part of the rear face of the game device 1, it kills with the number setting device 29a of rates, and the reset pin inserting part 29b is formed.

[0110]Above the playing-ball entrance 20b established in the downstream of the saucer 20, the solenoid-type playing-ball entrance closing mechanism (opening-and-closing solenoid) 20c is installed. When it operates when the playing-ball entrance blocking plate 20d always descends, the playing-ball entrance closing mechanism 20c has closed the playing-ball entrance 20b and the playing-ball ON switch display part 23 (drawing 1) is pushed, and the blocking plate 20d goes up, the playing-ball entrance 20b is opened wide.

[0111]***** 20e is formed in the state where it was open for free passage at the playing-ball entrance 20b, and the number detector 20f of reservoirs which detects the number of the game balls which flow down in ***** 20e is installed in the downstream from ***** 20e.

[0112]The control system of the above-mentioned control device 800A is shown in drawing 15.

[0113]What attaches and shows the mark 800 in drawing 15 is a central processing unit (CPU) which constitutes respectively a storage number calculating means and an excess amount emission-control means.

[0114].Along the address data bus from the central processing unit 800, as read-only memory slack ROM810 and a memory measure. Memory slack RAM811 in which read-out and the writing to illustrate are possible, the video display controller (VDG) 812, the input buffer 830, the latch circuitry 860, and sound generator 820 grade are installed.

[0115]In said ROM810, fixed data, such as a game program of a game or each game "great success", "per inside", and "per smallness", a simulation display program before a game, and the number program of rates, are usually memorized. The number of reservoirs, the number of bets, etc. are memorized by RAM811 if needed. The nonvolatile memory 813 is connected to RAM811 in preparation for the time of interruption to service. When a power supply falls below in a reference bolt, the hold stores of the stored data in RAM811 are carried out to this nonvolatile memory 813.

[0116]As shown in drawing 15, in said input buffer 830 The drum position detector 516,526,536, the number setting device 29a of rates, The reset detector 29b, the completion detector 433, the discharge detector 445, the dock sensor 431, the number detector 20f of reservoirs, It is connected via the low pass filters 831, such as an output terminal of the X coordinate of the matrix switch board of the overflow detector 447 and the LCD panel control device 236c shown in drawing 9, and an output terminal of a Y coordinate. The switch signal terminal and the vibration switch 244 of the LCD panel control device 236C which are shown in drawing 9 are connected to the interruption input (INT) terminal of the central processing unit 800 via the low pass filter 831.

[0117]It is connected to a video signal terminal of the LCD panel control device 236c shown in said video display controller (VDG) 812 at drawing 9.

[0118]The loudspeaker 822 is connected to said sound generator 82 via the amplifier 821.

[0119]In said output latch circuit 860, the entrance slot closing mechanism (opening-and-closing solenoid) 20c, The ball omission switching arrangement (ball omission solenoid) 447, the exhaust (discharge solenoid) 446, the game informative label part 28, the 1st - the 3rd pulse motor 515,525,535 are connected via the driver 861.

[0120]The above-mentioned control system acts as follows.

[0121]First, in a state in front of a game to which a power supply was supplied, Based on a fixed data program in ROM810, a display command signal is taken out from the central processing unit

(CPU) 800 by the video display controller 812, An advertising display and a simulation display have projected on the LCD panel 235 whole as the game display 10 by sending the signal to a video signal terminal of the LCD panel control device 236C of drawing 9.

[0122]If the injection switch display part 23 is pushed after being put into a game ball into the saucer 20 in this state, the playing-ball conversion item from that injection switch display part 23 will be inputted into the central processing unit 800 via the low pass filter 831 and the input buffer 830. Based on the playing-ball conversion item input, a sound effect generating command signal is sent to the sound generator 820 from the central processing unit 800, and a sound effect is emitted from the loudspeaker 822 via the amplifier 821. Simultaneously, the Kaide force signals are sent to the output latch circuit 860 from the central processing unit 800, the entrance slot closing mechanism (opening-and-closing solenoid) 20c operates via the driver 861 based on the Kaide force signals, and the playing-ball entrance 20b (drawing 14) is opened.

[0123]If the playing-ball entrance 20b is opened, the game ball in the saucer 20 will flow into ***** 20e from the entrance slot 20b, and the game ball which flowed will be detected by the number detector 20f of reservoirs.

[0124]The detecting signal from the number detector 20f of reservoirs is inputted into the central processing unit 800 via the low pass filter 831 and the input buffer 830.

[0125]While a count is started by the central processing unit 800 based on the input signal, A display command signal is taken out from the central processing unit 800 by the video display controller 812, the signal is sent to the video signal terminal of the LCD panel control device 236c of drawing 9, and the display of LCD panel 235 as the game display 10 is changed into a game display.

[0126]And the storing command signal of said the count number is sent to RAM811, and the count number is memorized as the number of reservoirs. Simultaneously, the display command signal of the count number is sent to the output latch circuit 860 from the central processing unit 800, and the number of reservoirs is displayed on the reservoir numeral part 16 via the driver 861. In that case, when the number of reservoirs exceeds a predetermined number (for example, 750 pieces). The ball of a part which the exhaust 446 operated via the output latch circuit 860 and the driver 861 by the instructions from the central processing unit 800, and exceeded it is returned into the saucer 20 via the ball exit 21, and the number memory of reservoirs in RAM811 and the display of the reservoir numeral part 16 are returned to "750." The return number is detected by the discharge detector 445, the detecting signal is inputted into the central processing unit 800 via the low pass filter 831 and the input buffer 830, and counts, and is controlled.

[0127]When the number of the game balls which flowed from the entrance slot 20b is not a multiple of "5" below with a predetermined number (for example, 750 pieces) with a reservoir storage number and the number of displays of the reservoir numeral part 16, either, By the central processing unit 800, the number of the odd balls is computed and the number is displayed on the odd ball display 24 via the output latch circuit 860 and the driver 861. The odd ball is returned into the saucer 20 via the ball exit 21, when the exhaust 446 operates based on the instructions from the central processing unit 800. The returned number is detected by the discharge detector 445, and when all the odd balls are returned, the odd ball display 24 is returned to the original color.

[0128]By conversion to said game display, the center of the game display 10 serves as a window transparent as the variable display windows 11A, 11B, and 11C, Around it, newly The bet numeral part 12 (12a-12g), combination appointed display line a-g, The start switch display 14, the stop displays 15a-15c, the stop switch displays 25a-25c, The completion display 13A, the score display part 13B, the injection switch display part 23, the odd ball display 24, the reservoir numeral part 16, the settlement-of-accounts switch display part 17, the auto display 18a, Graphic display of the auto switch display 18b, the taking-in switch display parts 27a-27e, and the taking-in numeral parts 19a-19e is carried out.

[0129]In this state, if it risks by a game person and the taking-in switch display parts 27a-27e for number specification are pushed alternatively, the switch one (SW ON) signal from that pushed

switch display part will be inputted into the central processing unit 800 via an interruption (INT) terminal. While a sound effect is emitted from the loudspeaker 822 by the instructions from the central processing unit 800 based on the input signal, the number of bets is memorized in RAM811. While the number of bets is subtracted from the number of reservoirs memorized in RAM811 and the number of reservoirs after [that] being subtracted is memorized in RAM811 by the central processing unit 800, the new number of reservoirs is displayed on the reservoir numeral part 16 via the output latch circuit 860 and the driver 861. Simultaneously, a display command signal is sent to the output latch circuit 860 from the central processing unit 800, and the color of the bet numeral part 12 corresponding to it and combination display line a-g changes via the driver 861.

[0130]In this state, a game person's push of the start switch display 14 will input the switch one (SW ON) signal from that start switch display 14 into the central processing unit 800 via an interruption (INT) terminal. While a sound effect is emitted from the loudspeaker 822 by the instructions from the central processing unit 800 based on the input signal, An operation command signal is sent to the output latch circuit 860 from the central processing unit 800, When the 1st – the 3rd pulse motor 515,525,535 drive via the driver 861 and the 1st – the 3rd rotating drum 511,521,531 rotate, the variable display windows 11A and 11B of the game display 10 and change of the display in 11C are started.

[0131]After the drive start of the pulse motor 515,525,535, if specified time elapse is carried out, By sending a stop command signal to the output latch circuit 860 from the central processing unit 800, and stopping the 1st – the 3rd pulse motor 515,525,535 in order with a predetermined time interval via the driver 861, The 1st – the 3rd rotating drum 511,521,531 are suspended, and the variable display windows 11A and 11B of the game display 10 and change of the display in 11C are suspended. It corrects, Before the specified time elapse after a drive start of the pulse motor 515,525,535, by a game person. When the stop switch displays 15a–15c are pushed, the switch one (SW ON) signal of the switch display part is sent to the central processing unit 800 via the low pass filter 831 and the input buffer 830. Based on the red light, a stop command signal is sent to the output latch circuit 860 from the central processing unit 800, The rotating drum 511,521,531 is suspended by stopping the pulse motor 515,525,535 according to an order that the switch display parts 15a–15c were pushed via the driver 861, The variable display windows 11A and 11B of the game display 10 and change of the display in 11C are suspended.

[0132]Thus, when change of a display in the variable display windows 11A and 11B and 11C is suspended, with the central processing unit 800. the [the 1st –] — stopping angle positions of the 1st – the 3rd rotating drum 511,521,531 calculating based on a detecting signal from the drum position detector 516,526,536 of three, and, It is judged whether it corresponds to which prize mode memorized in ROM810 from the result of an operation and the number memory of bets in RAM811.

[0133]As a result, when judged with not corresponding to a prize mode, awarded–balls discharge will not be performed as “separating”, but the above–mentioned usual game operation by a game person will be repeated.

[0134]When judged with a prize mode having occurred as a game result, it opts for a control procedure of an awarded–balls ejecting number or a subsequent game according to the generated prize mode.

[0135]As a kind of prize mode, there are “great success (important duty thing)”, “per inside (inside accessory)”, “per smallness (small bonus thing)”, in addition general “hitting”, Since programs, such as an awarded–balls discharge program according to each of that prize mode and a control procedure of a game after generating, are memorized by ROM810 as fixed data, according to the fixed data, game control of awarded–balls discharge or after that is performed.

[0136]“Great success” gives a game person most profit states, and when combination (for example, “7, 7, 7” which are shown in drawing 16 should put together) of a display which generates “great success” gathers on the appointed display line (a–g) corresponding to the number of bets which a game person risked, it generates them. The number setpoint signal of rates from the number setting

device 29a of rates is sent to the central processing unit 800, and the probability of occurrence of this "great success" is defined by memorizing the number of these rates in RAM811. When random number processing (data processing) is carried out and the probability of occurrence is reached with the central processing unit 800 based on the number of rates, becoming easy to generate "great success" from the time, if an operation decision signal for great success is sent to the output latch circuit 860 from the central processing unit 800 as shown in drawing 17 (A) — immediately — or "great success" will occur after a some times general game. At the time of this "great success", color of an applicable display line of the display lines (a-g) changes further via the output latch circuit 860 and the driver 861 based on a command signal from the central processing unit 800, and generating of "great success" is specified. A sound effect is emitted for a sound effect generating command signal from the loudspeaker 822 from the central processing unit 800. And while a score display is made by the score display part 13B by instructions from the central processing unit 800, the exhaust 446 operates and awarded-balls discharge of a predetermined number (for example, 90 pieces) is performed under discharge management by the discharge detector 445.

[0137] If this "great success" occurs, based on the fixed data in ROM810, the number of incorporation as the number of bets per time will be automatically set to "5", and the color of the auto display 18a will change. And based on the instructions from the central processing unit 800, the color of combination appointed display line b-b of the bet numeral part 12C and the middle changes, and it becomes effective [the combination of the display on combination appointed display line b-b of the middle]. When the combination (for example, "JAC, JAC, JAC" should put together) of a predetermined display on combination appointed display line b-b of the middle gathers for every game during this the "great success", While a score display is made by the score display part 13B by the instructions from the central processing unit 800, the prize balls of a predetermined number (for example, 90 pieces) come to be awarded. And at the time of generating of this "great success", since the important duty thing signal of H level is sent to the output latch circuit 860 as shown in drawing 17 (A), it becomes easy to produce the combination (for example, "JAC, JAC, JAC" should put together) of a display predetermined [that] from the central processing unit 800. As shown in drawing 17 (A) at such a bonus game, a prescribed frequency (for example, 66 times) challenge can be carried out. However, before completing the prescribed frequency, when the number of awarded-balls acquisition of the game person in the period of the "great success" (part which actually increased) reaches a predetermined number (for example, 4000 pieces), as shown in drawing 17 (A), an important duty thing signal serves as L level at the time, and it is returned to the usual game condition. When prize mode displays other than a predetermined display ("JAC, JAC, JAC") gather on combination appointed display line b-b of the middle at the time of the game of this "great success", a score display is made by the score display part 13B, and the prize balls of the number according to that prize mode are awarded.

[0138] "Per inside" gives a game person many profit states to the second, and when the combination (for example, "BAR, BAR, BAR", and "*", *, *" should put together) of the display which generates "per inside" is equal to the combination appointed display line (a-g) corresponding to the number of bets which the game person risked, it generates them. That probability of occurrence is controlled by random number processing (data processing) in the inside of the central processing unit 800 based on the number of rates generating "per inside" was also remembered to be in RAM811, and from the central processing unit 800, as shown in drawing 17 (B), [this] It becomes easy to generate after the operation definite signal of ** is sent to the output latch circuit 860 per inside. When "per inside" occurs, based on the command signal from the central processing unit 800, the color of an applicable display line (a-g) changes further via the output latch circuit 860 and the driver 861, and formation "per inside" is specified. [this] Simultaneously, a sound effect generating command signal is taken out from the central processing unit 800, and a sound effect is emitted from the loudspeaker 822. And while a score display is made by the score display part 13B by the instructions from the central processing unit 800, the exhaust 446 operates and awarded-

balls discharge of a predetermined number (for example, 90 pieces) is performed under the discharge management by the discharge detector 445.

[0139] And based on the fixed data in ROM810, the number of incorporation as the number of bets per time is automatically set to "5" after generating "per inside", [this] Based on the instructions from the central processing unit 800, the color of combination appointed display line b-b of the bet numeral part 12C and the middle changes, and it becomes effective [the combination of the display on combination appointed display line b-b of the middle].

[0140] During the period "per inside", the combination of a predetermined display at every game on combination appointed display line b-b of the middle. [this] When (for example, "JAC, JAC, JAC" should put together) gathers, a score display is made by the score display part by the instructions from the central processing unit 800, and the prize balls of a predetermined number (for example, 90 pieces) come to be awarded. And at the time of generating "per inside", since the inside accessory signal of H level is sent to the output latch circuit 860 as shown in drawing 17 (B), it becomes easy to produce the combination (for example, "JAC, JAC, JAC" should put together) of a display predetermined [that] from the central processing unit 800. [this] As shown in drawing 17 (B) at such a bonus game, a prescribed frequency (for example, 15 times) challenge can be carried out. However, before completing the prescribed frequency, when the number of awarded-balls acquisition of the game person in the period "per inside" (part which actually increased) reaches a predetermined number (for example, 1000 pieces). [the] As shown in drawing 17 (B), an inside accessory signal serves as L level at the time, the game condition "per inside" is ended, and it is returned to the usual game condition. [the] When prize mode displays other than a predetermined display ("JAC, JAC, JAC") gather on combination appointed display line b-b of the middle at the time of the game "per inside", the prize balls of the number according to that prize mode are awarded. [this]

[0141] "Per smallness" are "great success" and a thing like [at the time of "per inside"] which is not profits continuously and gives the profits of the challenge to the above-mentioned bonus game of a limitation once at a game person, It generates, when the combination (for example, the display to which three lemon pictures are equal should put together) of the display which generates "per smallness" gathers on the combination appointed display line (a-g) corresponding to the number of bets which the game person risked. That probability of occurrence is controlled by random number processing in the inside of the central processing unit 800 based on the number of rates generating "per smallness" was also remembered to be in RAM811, and from the central processing unit 800, as shown in drawing 17 (C), [this] It becomes easy to generate after the operation definite signal for a small hit is sent to the output latch circuit 860. When "per smallness" occurs, based on the command signal from the central processing unit 800, the color of an applicable display (a-g) changes via the output latch circuit 860 and the driver 861, and formation "per smallness" is specified. [this] Simultaneously, a sound effect generating command signal is taken out from the central processing unit 800, and a sound effect is emitted from the loudspeaker 822. And the exhaust 446 operates and awarded-balls discharge of a predetermined number is performed under the discharge management by the discharge detector 445. When "per smallness" occurs, if carried out at the time of the above "great success", it restricts to the same bonus game once, and it can be challenged. [this] If "per smallness" occurs, based on the fixed data of ROM810, will risk automatically, and the number of incorporation as a number will be set to "5", Based on the instructions from the central processing unit 800, the color of combination appointed display line b-b of the bet numeral part 12C and the middle changes, and it becomes effective [the combination of the display on combination appointed display line b-b of the middle].

[0142] As it restricts to 1 time of a game of the beginning after this generating "per smallness" and is shown in drawing 17 (C) from the central processing unit 800 in the output latch circuit 860, It is sent by small bonus thing signal of H level, and Combination of a predetermined display on combination appointed display line b-b of the middle. (For example, "JAC, JAC, JAC" should put

together) is set-easy, and it is controlled, and when it gathers, while a score display is made by the score display part 13B, prize balls of a predetermined number (for example, 90 pieces) come to be awarded with the exhaust 446.

[0143]By generating "per smallness", after [that] restricting once, coming out and completing the 1 time, a small bonus thing signal from the central processing unit 800 serves as L level, and profits of a chance to a bonus game given to a game person are returned to the usual game.

[0144]Into the usual game, the above "great success" and when a general prize mode of an except occurs "per smallness" "per inside", while a score display is made by the score display part 13B, awarded-balls discharge according to the prize mode is performed each time, but profits in particular by the above bonus games are not given.

[0145]As mentioned above, when "great success", "per inside", and "per smallness" occur and awarded-balls discharge is performed by the exhaust 446, The reservoir storage number is displayed on the reservoir memory indication part 16 at the same time it adds the number of awarded balls to a reservoir storage number before it and memorizes in RAM811 as a new reservoir storage number, until the number memory of reservoirs in RAM811 reaches a predetermined number (for example, 750 pieces). And if a reservoir storage number of RAM811 reaches a predetermined number (for example, 750 pieces), The ball omission switching arrangement 447 operates by instructions from the central processing unit 800, in drawing 14, as a chain line shows, the recovering spout 411 side is blockaded, and being calculated by the awarded-balls discharge detector 445, awarded balls discharged after it flow down in the awarded-balls lead-out conduit 442, and collect into the saucer 20 via the ball exit 21. And if prize balls in the saucer 20 become full and collect into the awarded balls emission chute 442, it will be detected by the overflow detector 448 and the overflow detecting signal will be inputted into the central processing unit 800. Awarded-balls discharge stops until an awarded-balls discharge red light is taken out from the central processing unit 800, the exhaust 446 is suspended based on an input of the detecting signal and the overflow is canceled.

[0146]According to advance of the above-mentioned game, a display command signal is taken out from the central processing unit 800 based on the fixed data in ROM810, and it is displayed on the game informative label part (dot display part) 28 according to the signal via the output latch circuit 860 and the driver 861.

[0147]When the interrupt signal from the vibration switch 244 is inputted into the central processing unit 800, Misbranding is made by the game informative label part 28, while an unjust process signal is sent to the video display controller (VDG) 812 and the latch circuitry 860 from the central processing unit 800 and a game is played disabling.

[0148]If the auto switch display 18b is pushed after pushing a desired taking-in switch display part (27a-27e), when it is troublesome to push the taking-in switch display parts 27a-27e one by one, to risk them into a game, and to carry out several sets, The set signal by those switch display part operations is sent to the central processing unit 800 as a switch one (SW ON) signal, While the number of bets is memorized in RAM811 by the instructions from the central processing unit 800 based on those signals, the instructions from the central processing unit 800 are sent to the output latch circuit 860, and the color of the auto display 16 changes via the driver 861. After it, unless a game person pushes the auto switch display 18b once again and resets an auto state, a game will advance with the set number of bets automatically. The setting operation of the number of bets is simplified by adoption of this automatic incorporation system, increase of the game frequency within unit time is achieved, and the troublesomeness to a game person's game is avoided.

[0149]If the settlement-of-accounts switch display part 17 is pushed when a game person wants to pay, the switch one (SW ON) signal will be inputted into the central processing unit 800, The ball of the number of reservoirs and the same number which a settlement-of-accounts command signal is taken out from the central processing unit 800 based on the input signal, and are memorized in RAM811 is returned into the saucer 20 via the ball exit 21 with the exhaust 446. Simultaneously, while the reservoir storage number of RAM811 is made into "zero", the display of the game display

10 is returned to an advertisement or a simulation display.

[0150]If the quantity of the reserve ball in a game and the upper tank 43 decreases, it will be detected by the dock sensor 431 and the detecting signal will be inputted into the central processing unit 800. Based on the input signal, a ball insufficient signal is sent to the central-control equipment besides a figure from the central processing unit 800. While a supply command signal is taken out from central-control equipment (outside of a figure) by the supply equipment 703 with a calculating machine based on the ball insufficient signal and the reserve ball in the replenishing gutter 700 is calculated by the supply equipment 703 with a calculating machine, it is filled in the upper tank 43.

[0151]An end of a predetermined value of calculation by the supply equipment 703 with a calculating machine will stop supply of the reserve ball to the upper tank 43 after that. As a result, if the reserve ball in the upper tank 43 decreases and it is detected by the completion detector 433, The detecting signal is sent to the central processing unit 800, graphic display of the character of completion is carried out to the completion display 13A by the central processing unit 800 based on the detecting signal, and the game after it is played into the state where it cannot do.

[0152]Then, if a reset pin (graphic display abbreviation) is inserted in the close reset pin inserting part 29b, A reset signal is sent to the central processing unit 800 from the reset detector 29b, a reserve ball is filled in the upper tank 43, being calculated by the calculating machine 703 by the instructions from the central processing unit 800, and a completion lamp of a graphic display abbreviation is switched off. If a key of a graphic display abbreviation to the number setting device 29a of rates is inserted in a prescribed depth and the key is turned in the predetermined direction while the reset pin kills and being inserted into the reset pin inserting part 29b, A signal from the number setting device 29a of rates is inputted into the central processing unit 800, the number of rates is memorized in RAM811, and it will be in a state in which a game is possible.

[0153]A block diagram of a power system allocated by the game device 1 is shown in drawing 18.

[0154]In the game device 1 in this embodiment, Electrical and electric equipment from the main power supply 900 of the exchange 24V is used for a lamp, the power supply 901 for solenoids, the power supply 902 for pulse motors, the power supply 903 for logical circuits, the power supply 904 for fluorescent lamps, etc., changing it, and electric supply is carried out from the power supply 904 for fluorescent lamps at the fluorescent lamp 47.

[0155]An example of the control management procedure of the main process of the game device 1 performed by the control system of drawing 15 is shown in drawing 19.

[0156]In Step R2, a start of a main process will perform initialization processing (initialization) first. As initialization, power-on processing, the check of a power failure flag, the probability-of-occurrence setting processing of a hit, etc. occur. After power-on processing checks reading and writing of RAM811, it is performed by clearing RAM811. If the contents of the nonvolatile memory 813 are read after power-on processing and the power failure flag stands, the check of a power failure flag will transmit the contents of the nonvolatile memory 813 to RAM811, and will be performed by clearing the nonvolatile memory 813 after an appropriate time. By inserting the close reset pin of a graphic display abbreviation in the close reset pin inserting part 29b, the probability-of-occurrence setting processing of a hit, The reset switch as the reset detector 29b (drawing 15) is continuously made into an ON state, and it carries out by setting up the number of rates by inserting and turning the number set key of rates of a graphic display abbreviation (for example, six kinds and six steps of hit probability-of-occurrence setting out are possible) to the number setting device 29a (drawing 1) of rates. If the number setting out of rates is not completed, a game is in disabling.

[0157]After initialization in the above-mentioned step R2, it shifts to Step R4 and an input process is performed. It is the surveillance of each input of the switch one (SW ON) signal from the LCD panel control device 236C which shows drawing 9 an input process here, the switch one (SW ON) signal by the side of an X coordinate, and the switch one (SW ON) signal by the side of a Y

coordinate.

[0158]After the input process in Step R4, it shifts to Step R6 and ball incorporation processing is performed. The detailed control management procedure of this ball incorporation processing is mentioned later.

[0159]After the ball incorporation processing in Step R6, it shifts to Step R8 and drum processing, i.e., rotation and stop processing of the drum 511,521,531, is performed.

[0160]It shifts to Step R10 after the drum processing in Step R8, and game condition decision processing is performed and it shifts to the judgment of Steps R12–R18.

[0161]When it is judged in Step R12 whether it is among the usual game and it is judged with it being among the usual game, game decision processing is usually made at Step R20, and it shifts to Step R28 as it is, and when judged with it not being among the usual game, it shifts to Step R14.

[0162]In Step R14, it is judged whether it is among "an important duty thing, i.e., the game of "great success",", When judged with it being among the game of an "important duty thing", important duty thing decision processing is made at Step R22, and it shifts to Step R28 as it is, and when judged with it not being among the game of an "important duty thing", it shifts to Step R16.

[0163]In Step R16, it is judged whether it is among "an inside accessory, i.e., the game "per inside",", When judged with it being among the game of an "inside accessory", inside accessory decision processing is made at Step R24, and it shifts to Step R28 as it is, and when judged with it not being among the game of an "inside accessory", it shifts to Step R18.

[0164]In Step R18, it is judged whether it is among "a small bonus thing, i.e., the game "per smallness",", When judged with it being among the game of a "small bonus thing", after small bonus thing decision processing is made at Step R26, it shifts to Step R28, and when judged with it not being among the game of a "small bonus thing", it shifts to Step R28 as it is.

[0165]If it shifted to Step R28 through the above-mentioned step R, after unjust processing ** described in detail in this step R28 later will be made, it shifts to Step R30.

[0166]In Step R30, processing by which the output process to an external terminal, i.e., the injection signal of the number of bets, the expenditure signal of awarded balls, an accessory generated signal (size, inside, smallness), a drum stop signal, the driving signal of a drum, etc. are outputted to an external terminal is performed.

[0167]After an external terminal output process is performed in Step R30, it shifts to Step R32 and an output process is performed.

[0168]After an appropriate time, he shifts to Step R34 and probability data processing, i.e., data processing of the probability to the number of rates, should do. It returns to Step R4 again, and processing not more than step R4 is repeated.

[0169]While the above-mentioned main process is performed, interrupt processing of the four steps R501–R506 is made suitably.

[0170]Countermeasures against power failure are carried out as the 1st interrupt-processing step R501. These countermeasures against power failure are processing which moves the data memorized in RAM811, such as the number of reservoirs, and the number of incorporation, to the nonvolatile memory 813, changes it, and memorizes it, when interruption to service occurs, and they are described in detail later.

[0171]A detector monitoring process is carried out as Step R502 of the 2nd interrupt processing. This detector monitoring process is described in detail later.

[0172]Time processing is carried out as Step R503 of the 3rd interrupt processing. This time processing is processing which resets a flag to every fixed time (interruption), and makes the time basis in a main process.

[0173]The 4th drum rotation monitoring process is processing which judges whether the rotating drum 511,521,531 became steady rotation.

[0174]The 5th switch interrupt processing is control management which judges whether which switch display part of the game display 10 was pushed, and performs processing corresponding to

the pushed switch display part.

[0175]6th unjust processing ** is control management which performs processing corresponding to it, when the detecting signal from the vibration switch 244 is inputted into the central processing unit 800.

[0176]An example of the control procedure of the detector monitoring process performed as interrupt processing during the main process of drawing 19 is shown in drawing 20 – drawing 22.

[0177]It is judged whether if a detector monitoring process is started, in Step R100, it risks first, a number is set, it incorporates, and the ending flag has become "1", When judged with the incorporation ending flag being "1", it shifts to Step R144 of drawing 21, and when judged with it not being "1", it shifts to Step R102.

[0178]It is judged whether the playing-ball ON flag is "1" by pushing the playing-ball ON switch display part 23 in Step R102, When judged with it being "1", it shifts to Step R108 as it is, and when judged with it not being "1", it shifts to Step R104.

[0179]When it shifts to Step R124 as it is when the one [the playing-ball ON switch display part 23] in Step R104 is judged and it judges one [*****], and it judges one [*****], it shifts to Step R106.

[0180]When it shifts to Step R106, after a playing-ball ON flag is set to "1" in this step R106, it shifts to Step R108, While the playing-ball entrance closing mechanism (opening-and-closing SOL) 20C operates and the playing-ball entrance 20b is opened, a closing mechanism flag (opening-and-closing solenoid flag) is set to "1", and shifts to Step R110 after an appropriate time.

[0181]If it is judged and is judged with having become one, it will shift to Step R112, and if it judges that it is not one whether the number detector 20f of reservoirs became one in Step R110, it will shift to Step R116.

[0182]When it shifts to Step R112 from Step R110, while the count by the number detector 20f of reservoirs is performed in this step R112, the count number is transmitted to magnetic-counter @. and the count number — below "750" — the multiple (5n) of "5" — when there is an odd ball which does not come out, the odd pitch count "a" is displayed on the odd ball display 24. A magnetic counter is for the measure against interruption to service, and the counted value by the number detector 20f of reservoirs is transmitted to magnetic-counter @. And it shifts to Step R114 after that.

[0183]On the other hand, when it shifts to Step R116 from the above-mentioned step R110, it is judged whether in this step R116, the closing mechanism flag (opening-and-closing solenoid flag) is "1." As a result, when judged with the closing mechanism flag (opening-and-closing solenoid flag) being "1", it shifts to Step R118, and when judged with it not being "1", it shifts to Step R124.

[0184]When it shifts to Step R114 from the above-mentioned step R112, It is judged whether it amounted to "750" of the highest number which can store the count number by the number detector 20f of reservoirs in this step R114, When judged with not amounting to "750", it shifts to Step R124 as it is, and when judged with having amounted to "750", it shifts to Step R118.

[0185]When it shifts to Step R114 or Step R118 from R116, while the playing-ball entrance closing mechanism (opening-and-closing SOL) 20c is suspended in this step R118 and the playing-ball entrance 20b is closed, a closing mechanism flag (opening-and-closing solenoid flag) is set to "0." And after it incorporates while being put into the pitch count "b" counted with the number detector 20f of reservoirs above "a" after the playing-ball entrance closing mechanism (opening-and-closing SOL) 20c is suspended, and an ending flag is set to "1", it shifts to Step R120.

[0186]It is judged in Step R120 whether "b" is size from "0", When judged with it not being size from "0", it shifts to Step R124 as it is, and when judged with it being size from "0", while an awarded-balls exaggerated flag is made by "1" at Step R122, after counting b pieces to magnetic-counter c, it shifts to Step R124.

[0187]It is judged whether the dock sensor 431 which detects that the reserve balls in the upper tank 43 (drawing 2) decreased in number to below the specified quantity in Step R124 became one,

When judged with it not being one, it shifts to Step R128 as it is, and when judged with having become one, after "1000" individual supply of the ball is carried out at Step R126 at the upper tank 43, it shifts to Step R128.

[0188]It is judged whether in Step R128, the discharge detector 445 became one. As a result, when judged with the discharge detector 445 not having become one, while a ball clogging flag is set to "1" at Step R136, an off-flag (OFF-FG) is set to "0", and carries out a return to the main process of drawing 19. It makes it identify whether discharging operation is possible for an off-flag, when discharging operation is possible, an off-flag is set to "1", and by ball clogging, when discharging operation is impossible, an off-flag is set to "0." On the other hand, when judged with the discharge detector 445 having become one at Step R128, while an off-flag is set to "1", a ball clogging flag is set to "0" and shifts to Step R132 after an appropriate time.

[0189]When judged with it being judged whether the awarded-balls flag is "1" in Step R132, and having become "1", it shifts to Step R134, and when judged with it not being "1", it shifts to Step R138.

[0190]As a result, when it shifts to Step R134. In this step R134, the number of awarded balls is added to the reservoir storage number in RAM811, and the added new reservoir storage number is transmitted in RAM811, What deducted "750" which is the highest number which can be stored from the new reservoir storage number is set to "b", and shifts to Step R142 after an appropriate time.

[0191]When it shifts to Step R138 from Step R132, It is judged whether in this step R, the awarded-balls exaggerated flag is "1", When judged with it not being "1", it results in the end of return processing at the time, and when judged with it being "1", after an awarded-balls exaggerated flag is set to "0" at Step R140, it shifts to Step R142.

[0192]It is judged whether "b" set up at the above-mentioned step R118 or Step R134 in Step R142 is positive, When judged with it not being positive, it results in the end of return processing at the time, and when judged with it being positive, it shifts to Step R164 of drawing 22 that the awarded balls to have exceeded should be discharged in the saucer 20.

[0193]When it shifts to Step R144 of drawing 21 from Step R100 of drawing 20, it is judged whether the discharging operation of whether in this step R144, the off-flag (OFF-FG) is "1" and awarded balls is possible. as a result, the off-flag (OFF-FG) not being "1", i.e. When it judges that the discharging operation of awarded balls is impossible, it shifts to Step R156 as it is, the off-flag (OFF-FG) is "1", namely, when judged with the discharging operation of awarded balls being possible, it shifts to Step R146.

[0194]When judged with it being judged whether the settlement-of-accounts flag is "1" in Step R146, and having become "1", it shifts to Step R150 as it is, and when judged with it not being "1", it shifts to Step R148.

[0195]When it shifts to Step R156 as it is when the one [the settlement-of-accounts switch display part 17] in Step R148 is judged and it judges one [*****], and it judges one [*****], it shifts to Step R150.

[0196]As a result, when it shifts to Step R150, a settlement-of-accounts flag is set to "1" in this step R150, the ball omission switching arrangement (ball omission change solenoid) 447 is made one, and the recovering spout 441 (drawing 7) is blockaded. And while the playing-ball entrance closing mechanism 20c is turned off and the playing-ball entrance 20b is blockaded, after the auto flag (AUTO-FG) of the auto switch display 18b is set to "0", are one [the exhaust 446], and a discharge flag is set to "1" and shifts to Step R152 after an appropriate time.

[0197]In Step R152, when judged with it being judged whether the count number by the discharge detector 445 is the reservoir storage number and the same number in RAM811, and not being the same number, it shifts to Step R156 as it is, and when judged with it being the same number, it shifts to Step R154.

[0198]When it shifts to Step R154, the exhaust (discharge SOL) 446 is suspended in this step R154

(OFF), and a discharge flag and a settlement-of-accounts flag are set to "0." And after the ball omission switching arrangement (ball omission equipment SOL) 447 is turned off and the awarded balls emission chute 422 side is blockaded, it shifts to Step R156.

[0199]When judged with it being judged whether the auto switch display 18b serves as one in Step R156, and not serving as one, it shifts to Step R124 of drawing 20, and when judged with it being one, it shifts to Step R158.

[0200]It is judged whether in Step R158, the auto flag (AUTO-FG) is "1." As a result, when judged with it not being "1." After an auto flag (AUTO-FG) is set to "1" at Step R162, it shifts to Step R124 of drawing 20, and when judged with it being "1", after an auto flag (AUTO-FG) is set to "0" at Step R160, it shifts to Step R124 of drawing 20. When it shifts to Step R124, the control procedure not more than step R124 is performed.

[0201]When it shifts to Step R164 of drawing 22 from Step R142 of drawing 20, the exhaust (discharge SOL) 446 operates in this step R164 (ON), and an exhaust flag (discharge SOL flag) is set to "1." When the ball omission switching arrangement (ball omission change SOL) 447 operates, the recovering spout 441 side is blockaded and a ball comes to be discharged in the saucer 20 via the awarded-balls lead-out conduit 442.

[0202]And shift to the following step R166 and it is judged whether in this step R166, the discharge count number by the discharge detector 445 became equal to "b", When judged with having become equal, it shifts to Step R168, and when judged with it not being equal, it shifts to Step R170.

[0203]As a result, when it shifts to Step R168, while the exhaust (discharge SOL) 446 is suspended in this step R168 (OFF), an exhaust flag (discharge SOL flag) and an awarded-balls flag are set to "0." The ball omission switching arrangement (ball omission change SOL) 447 is suspended (OFF), the reservoir storage number in RAM811 is set to "750", after an appropriate time, it shifts at the place which is 2F of drawing 20, and a return is carried out to the main process of drawing 19.

[0204]On the other hand, when it shifts to Step R170 from the above-mentioned step R166, it is judged whether this step R170 smell overflow detector 448 serves as one. As a result, when judged with it not being one, shift as it is at the place of 2F of drawing 20, and it results in the end of return processing, When judged with it being one, while shifting to Step R172 and suspending the exhaust (discharge SOL) 446 (OFF), an exhaust flag (discharge SOL flag) is set to "0", And after the display of the reservoir numeral part 16 blinks, it shifts at the place which is 2F of drawing 20, and results in the end of return processing.

[0205]An example of the control procedure of the ball incorporation processing under main process of drawing 19 is shown in drawing 23.

[0206]If ball incorporation processing is started, in Step R200, it will be judged first whether the auto flag (AUTO-FG) is "1", When judged with it being "1", it shifts to Step R202, and when judged with it not being "1", it shifts to Step R208.

[0207]As a result, it is judged whether when it shifts to Step R202, in this step R202, the through flag (THO-FG) is "1", When judged with it being "1", it shifts to Step R212 as it is, and when judged with it not being "1", it shifts to Step R204.

[0208]If it is judged whether either serves as the one (ON) in Step R204 among the taking-in switch display parts 27a-27e, and it does not serve as one, and it shifts to Step R218 as it is and has become one, it will shift to Step R206.

[0209]As a result, when it shifts to Step R206. In this step R206, while the number of incorporation of the taking-in switch display part [one / a part] (27a or-the 27e (either)) is memorized by number memory of incorporation ** in RAM811, The game flag (GAME-FG) which plays a through flag (THO-FG) and a game possible is set to "1", and shifts to Step R212 after an appropriate time.

[0210]And after that from which it incorporated from the number memory of reservoirs in RAM811 at Step R212, and number memory ** was deducted is set to "d", it shifts to Step R214.

[0211]It is judged whether "d" computed at said step R212 in Step R214 is negative, When judged with it being negative, the game flag 0 and the game flag 1 are set to "0" at Step R220, and it is

made game disabling, it shifts to drum processing as it is, and when judged with it not being negative, it shifts to Step R216.

[0212]Incorporate, while "d" computed at said step R212 in this step R216 is transmitted to the number memory of reservoirs in RAM811, when it shifts to Step R216, and number memory ** is transmitted to magnetic-counter b, And the game flag 0 (GAME-FG0) is set to "1", and shifts to Step R218 after an appropriate time.

[0213]It is judged whether the number of reservoirs memorized in RAM811 in Step R218 is below "100", After shifting to drum processing as it is when judged with it not being below "100", incorporating at Step R222, setting an ending flag to "0", when judged with it being below "100", and setting a playing-ball ON button flag to "1", it shifts to drum processing.

[0214]An example of the control procedure of the unjust processing under main process of drawing 19 is shown in drawing 24.

[0215]If unjust processing ** is started, when it is first judged with it being judged whether a closing mechanism flag (opening-and-closing SOL flag) is "1", and being "1" at Step R300, it shifts to Step R304 as it is, and when judged with it not being "1", it will shift to Step R302.

[0216]It is judged whether in Step R302, there is any movement of the ball in the number detector 20f of reservoirs, When judged with there being movement of a ball, inaccurate flag ** is set to "1" at Step R308, and it shifts to the external terminal output process of the main process of drawing 19 as it is, and when judged with there being no movement of a ball, it shifts to Step R304.

[0217]When it is judged in Step R304 whether an exhaust flag (discharge SOL flag) is "1" and it is judged with it being "1", it shifts to an external terminal output process as it is, and when judged with it not being "1", it shifts to Step R306.

[0218]It is judged whether in Step R306, there is any movement of the ball in the discharge detector 445, When judged with there being no movement of a ball, it shifts to an external terminal output process as it is, and when judged with there being movement of a ball, after inaccurate flag ** is set to "1" at Step R308, it shifts to the external terminal output process of the main process of drawing 19.

[0219]It returns, when inaccurate flag ** is set to "1" in the above-mentioned step R308 and injustice is removed.

[0220]The control management procedure of unjust processing ** performed as interrupt processing during the main process of drawing 19 is shown in drawing 25.

[0221]If unjust processing ** is started, it will be judged first whether the vibration switch 244 became the one (ON) at Step R350, When judged with having become one, inaccurate flag ** is set to "1" at Step R352, After misbranding is furthermore made at the following step R354 to the game display 10, it shifts to the external terminal output process of the main process of drawing 19, and when judged with it not being one, it shifts to the external terminal output process of the main process of drawing 19 as it is. It returns, when inaccurate flag ** is set to "1" and injustice is removed.

[0222]The control management procedure of switch interrupt processing performed as interrupt processing during the main process of drawing 19 is shown in drawing 26 and drawing 27.

[0223]In the figure, a start of switch interrupt processing will set up a reference switch table from the present display pattern of the game display 10 in Step R400 first.

[0224]Here, when a display pattern is explained here, the display pattern 1 in a game and the display pattern 2 before a game start are shown. The display pattern 1 of these has the various switch display parts which are displays when the display of the game display 10 is possible in the state in the game, and are displayed on the game display 10 in the state of working effectively as a switch. At this time, the state of a switch table (matrix switch board 236B) shows in the explanatory view (only a view is shown) of drawing 28. That is, the part corresponding to the position of each switch display part serves as a data part of "01" - "09" and "0A" - "0C" of the portion specified by the X coordinate and Y coordinate of the matrix switch board 236B. And the part of the matrix switch

board 236B specified with those marks works effectively as a switch, and other parts (it is "0, 0" data) are effectively committed as a switch. On the other hand before the game start in the display pattern 2, the display of the game display 10 is an advertising display, a simulation display, etc., A game is impossible and it is still in the state where various switch display parts do not work effectively as a switch except for the injection switch display part 23 currently displayed on the game display 10. At this time, the state of a switch table (matrix switch board 236B) shows in the explanatory view (only a view is shown) of drawing 29. That is, except for the injection switch display part 23 specified by the X coordinate and Y coordinate of the matrix switch board 236B, and a corresponding portion (it does not appear in Drawings), portions are [no] "0 or 0" data, and the part of a gap may also have comes to function as a switch.

[0225]In the above-mentioned step R400, it is judged whether the present display pattern is which display pattern, and a switch table is set up according to it.

[0226]And X of an ON switch (ONSW) and read in of SW data corresponding to a Y coordinate are performed at the following step R402. Based on the result of the read in, each judgment of Steps R404-R426 is performed by the central processing unit 800.

[0227]As a result, when judged with it being "switch (SW) data =1" in Step R404, after the flag of a taking-in switch (SW5) is set as "1" at Step R428, a return is carried out to the main process of drawing 19.

[0228]When judged with it being "switch (SW) data =2" in Step R406, after the flag of a taking-in switch (SW10) is set as "1" at Step R430, a return is carried out to the main process of drawing 19.

[0229]When judged with it being "switch (SW) data =3" in Step R408, after the flag of a taking-in switch (SW15) is set as "1" at Step R432, a return is carried out to the main process of drawing 19.

[0230]When judged with it being "switch (SW) data =4" in Step R410, after the flag of a taking-in switch (SW20) is set as "1" at Step R434, a return is carried out to the main process of drawing 19.

[0231]When judged with it being "switch (SW) data =5" in Step R412, after the flag of a taking-in switch (SW25) is set as "1" at Step R436, a return is carried out to the main process of drawing 19.

[0232]When judged with it being "switch (SW) data =6" in Step R414, after the flag of a playing-ball ON switch (SW) is set as "1" at Step R438, a return is carried out to the main process of drawing 19.

[0233]When judged with it being "switch (SW) data =7" in Step R416, after the flag of a start switch (SW) is set as "1" at Step R440, a return is carried out to the main process of drawing 19.

[0234]When judged with it being "switch (SW) data =8" in Step R418, after the flag of a stop switch (SW1) is set as "1" at Step R440, a return is carried out to the main process of drawing 19.

[0235]When judged with it being "switch (SW) data =9" in Step R420, after the flag of a stop switch (SW2) is set as "1" at Step R444, a return is carried out to the main process of drawing 19.

[0236]When judged with "switch (SW) data being "A" in Step R422 (drawing 23 (B)), after the flag of a stop switch (SW3) is set as "1" at Step R446, a return is carried out to the main process of drawing 19.

[0237]When judged with "switch (SW) data being "B" in Step R424, after the flag of an auto switch (SW) is set as "1", a return is carried out to the main process of drawing 19.

[0238]When judged with "switch (SW) data being "C" in Step R426, after the flag of a settlement-of-accounts switch (SW) is set as "1", a return is carried out to the main process of drawing 19.

[0239]The control procedure of the countermeasures against power failure performed as interrupt processing during the main process of drawing 19 is explained to drawing 30.

[0240]If countermeasures against power failure are started, memory of the number memory of reservoirs in RAM811, the variable b, the number of rates, and a power failure flag will be

transmitted to nonvolatile memory at Step R501, and a return will be carried out to a main process after an appropriate time.

[0241]Since the state before interruption to service is reproduced when the data in RAM811 is memorized by nonvolatile memory at the time of interruption to service and a power supply is again switched on by these countermeasures against power failure, disappearance of the memory by interruption to service is avoided.

[0242]Inconvenience is not produced even if it is, when it seems that he would like to stop a game before prolonging interruption to service and avoiding interruption to service, since a game person's pitch count can be known from each value of above-mentioned magnetic-counter a, b, and c.

[0243]In this embodiment, two steps of backup methods, nonvolatile memory and a magnetic counter, are adopted as a measure to interruption to service.

[0244]Since the LCD (RIKITTO crystal display) panel 235 in which the matrix switch board 236B was built in is used as the game display 10 according to the game device 1 concerning this embodiment, Various required switches can be arranged to the game display 10 on a game, and reduction of part mark can be aimed at compared with the case where a switch is formed separately. The flexibility of arrangement of a switch increases.

[0245]A game display is made to the dot-matrix plotting board 236A of LCD panel 235, and also various displays if needed can be performed and game nature and interest are increased — an advertising display and a simulation display can be performed before a game.

[0246]Since LCD panel 235 is transparent, even if it does not provide an opening window in particular, the contents of a variable display of the rotating drum device 50 installed in the back side of LCD panel 235 may let transparent LCD panel 235 pass, and are in sight.

[0247]When power strongly pushed to LCD panel 235 is added, while this panel 235 retreats, being detected by the vibration switch 244 for unjust detection, and misbranding's being made by the game display 28 and made game disabling, Since the detecting signal reaches a control center, when LCD panel 235 is struck by game person or it is pushed strongly, injustice will be detected promptly, and an important occurrence which LCD panel 235 damages can be prevented.

[0248]After a game person puts a ball into the saucer 20, when the playing-ball ON switch display part 23 is pushed, a predetermined number. While incorporation of a ball is performed by making (for example, 750 pieces) into a maximum and the incorporated pitch count is memorized as the number of reservoirs by the number memory of reservoirs of the control device 800, Since a game can be continuously performed as long as the visible display of the number of reservoirs is carried out to the reservoir numeral part 16 and the number memory of reservoirs has memory, operation on a game person's game becomes easy.

[0249]And since the pitch count beyond the predetermined number of a part is given to a game person with a real ball and reservoir memory is always carried out within the limit of the predetermined number if it is when a prize mode occurs continuously with advance of a game and the number memory of reservoirs exceeds a predetermined number (for example, 750 pieces), the following effects are done so.

[0250]Namely, since it risks on condition that there is number memory of reservoirs, and a number (the number of incorporation) is automatically subtracted and added to a reservoir storage number, it risks and incorporation operation of a number is ended especially when based on the automatic incorporation system of the number of bets, The real ball of a saucer is incorporated compared with the conventional thing incorporated each time, and ** of a game person until the time to an end is shortened remarkably and shifts to a game is reduced remarkably.

[0251]As an effect of an incorporation system with the number restrictions of reservoirs, when the number restrictions of reservoirs are exceeded, there is the real thrill that the real ball of a part which exceeded pays out a game person as a prize. Since it only pays out by the number memory restrictions of reservoirs of ***** (for example, 750 pieces) when the number of game balls which the settlement-of-accounts switch display part 17 was operated, and the game person gained

pays out, compared with the case where there are no number memory restrictions of reservoirs, the expenditure time at the time of settlement of accounts is reduced. Especially when unrestricted, when there are many reservoir storage numbers, there is inconvenience that the time required of the settlement of accounts starts for a long time, like settlement of accounts when it becomes the close.

[0252]According to this embodiment, there are a manual incorporation system and an automatic incorporation system as an incorporation system of the number of bets. It is a system with which a game person sets the pitch count bet on a game for 1 time of every game, and the manual incorporation system is effective in it to change the number of bets here frequently. On the other hand, if the pitch count (setting out of the incorporation button switch display parts 27a-27e) once bet on a game is set, an automatic incorporation system, change of the setting out by a game person should do — as long as there is nothing, for every one end of a game, promptly, the set pitch count is incorporated automatically and the continuation game of the same number of bets of it is played possible.

[0253]Therefore, the game person can use the manual incorporation system and automatic incorporation system properly if needed. And if it sets to an automatic incorporation system to perform a game continuously with the same number of bets especially, while part operation in which the number setting out of bets is performed automatically is simplified and being able to aim at increase of the game frequency within unit time, ** of several sets bet operation to a game person will be avoided.

[0254]If it is when a reservoir storage number decreases from constant value (for example, 100 pieces), it operates so that the ball in the saucer 20 may be incorporated again.

[0255]Thus, if it is in this game device, it operates so that it can maintain at state that a reservoir storage number is always required and sufficient.

[0256][A 2nd embodiment of invention] Although it supposes that the injustice at the time of a game display being struck by the game person or being pushed strongly is detected electrically, and is processed in a 1st embodiment of the above-mentioned invention, it is supposed in this embodiment that it detects mechanically and processes.

[0257]Since the composition of the game device in this embodiment has the 1st the same game device and composition of an embodiment of the above-mentioned invention except for the portion which detects that injustice mechanically and processes it, duplication explanation is given to avoid if possible and explain that different component part.

[0258]On the explanation, when the same component part as a 1st embodiment of invention comes out, the same Drawings and a mark are quoted with having used by a 1st embodiment of invention.

[0259]An exploded perspective view shows the fixing structure of LCD panel 235 to front case 2B of the game device in this embodiment to drawing 31.

[0260]In the back side upper position of the opening 210, as shown in the figure, it rolls round, and the shutter device 201 of the formula is installed. The paper winding shaft 201b which was stored as for this shutter device 201 enabling free rotation in the case 201a and this case 201a, The shutter 202 attached to this paper winding shaft 201b so that rolling up was possible, It comprises a spring for a return (graphic display abbreviation) which gives the torque to the direction which unfolds the shutter 202, and the string 201c for rolling up of the shutter 202 wound around said paper winding shaft 201b to said paper winding shaft 201b.

[0261]The guidance component 206,206 of a cross section U shape to which it shows the shutter 202 of said shutter device 201 is installed in the right-and-left back side of the opening 210 in the state where it countered mutually.

[0262]While the up-and-down couple [every] rack gear 208 is installed in the state where it countered mutually, the spring hook 203 is installed in a back side right-and-left position of the opening 210. The LCD panel stopper 205 is installed in one opening 210 back side side.

[0263]The rubber packing 230 attached to the packing fitting part 211 (drawing 32) on the opening

210 back side of front case 2B is formed in rectangular shape from which the inside became an opening as shown in drawing 26, The fitting groove 231 which can carry out outer fitting to the packing fitting part 211 as shown in drawing 32 is continued and established in the whole circumference at the front side.

[0264]LCD panel 235 — said rubber packing 230 — abbreviated — it is made in the rectangle of the same size and the tapped hole 238 is established in the four—corners position on the back side, respectively.

[0265]As for the oscillating perception frame 240, the gear group for migration length adjustment is installed in the outside of the frame board 241,241 on either side and these frame boards 241,241, respectively.

[0266]The pinion gear 242,242 with which these gear groups always gear, respectively on said rack 208 attached to the back side of front case 2B, While these pinion gears 242,242 do and gearing with the pinion gear 242,242, respectively, it comprises the transfer gear 243,243 of the couple which meshes each other mutually. And the pinion gear 242 on either side is being fixed to the both sides of the axis of rotation 244 constructed across horizontally between the frame boards 241,241 of said right and left, respectively, and transfer of torque is made between [of these right and left] pinion gear 242,242.

[0267]The bracket 241a for attachment is formed in the vertical position by the side of front [of the frame board 241,241 on either side], each bracket 241a is made to correspond with the position of the tapped hole 238 of LCD panel 235, and the bolt insertion hole 241b is formed.

[0268]The move regulating piece 247 which can contact said LCD panel stopper 205 formed in frame—front—cover 2B is formed in the front end part outside of one frame board 241.

[0269]And the rubber packing 230 is first attached to the packing fitting part 211 on the back side of the opening 210 of front case 2B. When it ***** with the bolt insert hole 241b, and the hole 238 is put together, and it lets the bolt 246 pass and is screwed by said tapped hole 238 all over said bolt insert hole 241b after an appropriate time, LCD panel 235 and the oscillating perception frame 240 are unified. Then, after changing into the state where the shutter 202 was able to wind up, as [show / to drawing 27 / by pulling the shutter rolling—up string 201c], It is arranged at the state where it changed into the state where said four pinion gears 242 were clenched by said four rack gears 202, respectively, and the move regulating piece 247 of the oscillating perception frame 240 contacted the LCD panel stopper 205 on the opening 210 back side. Then, the spring 207 for a return is stretched between the spring hook 203 on the front case 2B back side, and the spring mounting hole 241c established in the frame board 241,241 of the oscillating perception frame 240.

[0270]Thus, if it is in the state where LCD panel 235 was installed in the opening 210 back side of front case 2B, The oscillating perception frame 240 and LCD panel 235 are maintained by the state where are in the state where moved forward with the tension of the spring 207 for a return, and the back of the rubber packing 230 was contacted, and the free end (tip) of the shutter 202 is rolled round in contact with the upper bed of LCD panel 235.

[0271]If LCD panel 235 is struck strongly or it is pushed by the game person in this state, LCD panel 235 will retreat together with the oscillating perception frame 240. If the retreat distance becomes beyond prescribed distance, it will be in the state where the tip of the shutter 202 separated from the upper bed of LCD panel 235, and descended along the guide rail of the guide rail 206, and the opening 210 was blockaded.

[0272]thus, injustice, such as LCD panel 235 being struck strongly or being pushed, — ***** — coming — when the opening 210 is blockaded by the shutter 202, it will be in the state in which a game is impossible.

[0273]Thus, when it changes into the state where the shutter 202 was closed, after opening frame—front—cover 2B, if the string 201c for shutter rolling up is pulled, the shutter 202 can wind up and the advance return of LCD panel 235 and the oscillating perception frame 240 will be carried out by the spring 207 for a return. By it, it will be in the state in which a game is possible again.

[0274]Even if it is a case where which portion of LCD panel 235 was struck by the game person, or it is pushed, While retreating uniformly, without LCD panel 235 and the oscillating perception frame 240 inclining selectively by work of said gear group (242,243) for migration length adjustment, it returns uniformly also at the time of a return.

[0275]the time of according to the game device 1 in this embodiment, especially LCD panel 235 being struck strongly, or being pushed — the above — by mechanical composition, LCD panel 235 retreats, and the opening 210 is closed by the shutter 202 and will be in the state in which a game is impossible. A maintenance is easy because of mechanical composition. Since it retreats uniformly, without LCD panel 235 and the oscillating perception frame 240 inclining selectively by work of the gear group (242,243) for migration length adjustment when which portion of LCD panel 235 is struck or it is pushed, modification of LCD panel 235 can be prevented.

[0276]The effect by other composition is the same as the effect by a 1st embodiment of invention. The kind and number of the combination appointed display lines which are validated as a game result corresponding to the number of bets may not be limited to the above-mentioned embodiment, and may be what kind of kind and number. Although it faces performing a game and the game is performed by throwing in a game ball as a game medium in the above-mentioned embodiment, as long as it is not limited to the game ball of the above-mentioned embodiment as a game medium, it throws in a game medium and it performs a game, it may be what kind of game medium.

[0277]

[Effect of the Invention]In before the start of a game according to invention concerning Claim 1, with the liquid crystal display panel allocated in the front-face side of two or more drums, Since a predetermined simulation display is performed, the liquid crystal of the range corresponding to a part of each drum surface will be [be / it / under / game / setting] in a light transmission state on the other hand and the display window was formed from liquid crystal display, it becomes it is variegated and more novel and possible to perform the high display of interest. The interest of a game can be raised while the simulation display before a game start can fully draw the interest of the game person concerned to the game person who has chosen the game device which performs a game especially. Also to beginners etc., the sense of security to a game can be given by the simulation display, and it can prevent keeping performing a game with the game device concerned at arm's length. It can make an effective display line according to invention concerning Claim 2, recognize certainly, since the liquid crystal display panel was made to perform an effective prize line in an identifiable predetermined line display by liquid crystal display into the game while it can express an effective display line as a more novel method. According to invention concerning Claim 3, a liquid crystal display panel, Since it was made to change the color of the effective prize line where the special combination mode concerned was displayed by liquid crystal display when a special combination mode was displayed, it can be made to recognize certainly that the special combination mode was displayed and in which effective prize line it was materialized.

[Translation done.]

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TECHNICAL FIELD

[Field of the Invention]This invention allocates two or more drums on which it had two or more identification information, and at the time of the rotation stops of each of this drum. When the combination mode of the identification information displayed corresponding to the display window formed in the front-face side turns into a special combination mode on the effective prize line set up beforehand, a game position is related with the game device which will be in a great success state advantageous to a game person.

[Translation done.]

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PRIOR ART

[Description of the Prior Art]While having the drum on which two or more identification information was provided in the peripheral face from before three pieces, for example, Equip the front-face side of this drum with the front panel, and the display window which three identification information for example, in each drum can recognize visually from the front on this front panel is formed, In the prize line top where the combination display mode of the identification information displayed in the display window was validated of two or more prize lines at the time of the rotation stops of each drum, For example, when it becomes special combination display modes, such as "7, 7, 7", a game device which will be in a great success state with a game position advantageous to a game person is known.

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EFFECT OF THE INVENTION

[Effect of the Invention]In before the start of a game according to invention concerning Claim 1, with the liquid crystal display panel allocated in the front-face side of two or more drums, Since a predetermined simulation display is performed, the liquid crystal of the range corresponding to a part of each drum surface will be [be / it / under / game / setting] in a light transmission state on the other hand and the display window was formed from liquid crystal display, it becomes it is variegated and more novel and possible to perform the high display of interest. The interest of a game can be raised while the simulation display before a game start can fully draw the interest of the game person concerned to the game person who has chosen the game device which performs a game especially. Also to beginners etc., the sense of security to a game can be given by the simulation display, and it can prevent keeping performing a game with the game device concerned at arm's length. It can make an effective display line according to invention concerning Claim 2, recognize certainly, since the liquid crystal display panel was made to perform an effective prize line in an identifiable predetermined line display by liquid crystal display into the game while it can express an effective display line as a more novel method. According to invention concerning Claim 3, a liquid crystal display panel, Since it was made to change the color of the effective prize line where the special combination mode concerned was displayed by liquid crystal display when a special combination mode was displayed, it can be made to recognize certainly that the special combination mode was displayed and in which effective prize line it was materialized.

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TECHNICAL PROBLEM

[Problem to be solved by the invention]By the way, in the conventional game device, in order that a means to perform a variable display might use a mechanism-type drum, when a game was not performed, it was only lacking [a part of identification information of an outside surface of a stopped drum] only in variability currently displayed from a display window.

[0004]Therefore, it is difficult to advertize the game device strongly that it is hard to take out a difference from other game devices, and there was a problem that it was difficult to draw interest of a game person who has chosen a game device which performs a game. Since a game person's operation was to some extent required when the game device concerned performs a game, for a beginner etc. who have not performed a game in not much such a game device, it was avoided in many cases.

[0005]This invention was made in order to solve an aforementioned problem, and it aims at a rather than thing for which a game device which can fully draw a game person's interest by having a liquid-crystal-display function in which a high display of interest can be performed is provided, only concerning not only a display on a drum but a game.

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MEANS

[Means for solving problem]In order to solve an aforementioned problem, the invention according to claim 1, Allocate two or more drums on which it had two or more identification information, and at the time of the rotation stops of each of this drum. In the game device which will be in a great success state with a game position advantageous to a game person when the combination mode of the identification information displayed corresponding to the display window formed in the front-face side turns into a special combination mode on the effective prize line set up beforehand, Allocate the liquid crystal display panel of a prescribed area in the front-face side of two or more of said drums, and said liquid crystal display panel, While liquid crystal display performed the predetermined simulation display before the start of a game, the liquid crystal of the range corresponding to a part of each drum surface is changed into a light transmission state, and said display window was formed [be / it / under / game / setting].

[0007]Into a game, said liquid crystal display panel may be made to perform said effective prize line in an identifiable predetermined line display by liquid crystal display.

[0008]When said special combination mode is displayed, it may be made for said liquid crystal display panel to change the color of the effective prize line where the special combination mode concerned was displayed by said liquid crystal display.

[0009]In before the start of a game according to invention concerning Claim 1, with the liquid crystal display panel allocated in the front-face side of two or more drums, From liquid crystal display, a predetermined simulation display is performed, on the other hand, the liquid crystal of the range corresponding to a part of each drum surface will be in a light transmission state, and a display window will be formed [be / it / under / game / setting]. According to invention concerning Claim 2, into a game, a liquid crystal display panel performs an effective prize line in an identifiable predetermined line display by liquid crystal display.

[0010]According to invention concerning Claim 3, a liquid crystal display panel, Since it was made to change the color of the effective prize line where the special combination mode concerned was displayed by liquid crystal display when a special combination mode was displayed, it can be made to recognize certainly that the special combination mode was displayed and in which effective prize line it was materialized.

[0011]

[Mode for carrying out the invention][A 1st embodiment of invention] The perspective view of the game device 1 as this embodiment of the invention is shown in drawing 1. The game device 1 is provided with the case 2 which constitutes the outline, and this case 2 comprises the case body 2A, a front case 2B attached to the front-face side center section so that opening and closing were possible, and the upper housing 2C attached to the front-face side upper part. The lock 29C for locking so that front case 2B may not open is installed in the right end middle of said front case 2B.

[0012]The game display 10 which consists of a LCD (liquid crystal display) transparent state change panel in which two or more liquid crystal display elements were allocated is formed in the front-face

side upper part of said front case 2B in the state where it extended far back a little.

[0013]The variable display windows (display window) 11A, 11B, and 11C as three variable displays are formed in the center of this game display 10, and every three variable displays of the rotating drum device 50 on the backside are in sight through each variable display windows 11A, 11B, and 11C. A variable display device is constituted by the rotating drum device 50 and the variable display windows 11A, 11B, and 11C.

[0014]It risks on a left and a sliding direction of the variable display window 11A, graphic display of the numeral part 12 (12a-12g) is carried out, and graphic display of "5", "10", "15", and the number of bets of is carried out to these each bet numeral part 12 (12a-12g). When graphic display of combination appointed display line a-g illustrated as a prize line corresponding to the number of bets by which graphic display is carried out to each bet numeral part 12 (12a-12g) is carried out and various prize modes are materialized, When color of it and corresponding display line a-g changes, it is indicated clear by prize mode formation.

[0015]Under said bet numeral part 12, graphic display of the start switch display 14 is carried out. Under each variable display windows 11A, 11B, and 11C, graphic display of the stop displays 15a-15c and every one pair each of stop switch displays 25a-25c is carried out.

[0016]The completion display 13A is made a left of the game display 10, and graphic display of the score display part 13B is carried out to an upper center, respectively. Above a right direction, the reservoir numeral part 16 as a storage number displaying means is made the bottom of it, and graphic display of the settlement-of-accounts switch display part 17 is further carried out for the injection switch display part 23 and the odd ball display 24 to the lower part, respectively. Graphic display of the auto display 18a and the auto switch display 18b is carried out to a direction [lower right] part. Graphic display of the taking-in switch display parts 27a-27e and the taking-in numeral parts 19a-19e which are illustrated as a selecting means is carried out to the lower part in the state corresponding to 1 to 1.

[0017]The game informative label part 28 of a dot-matrix display type is formed above the game display 10, and the display panel 252 is installed above the ball saucer 20.

[0018]When the taking-in switch display part 27a of the aforementioned taking-in switch display parts 27a-27e is a switch which sets the number of bets of a ball as "5" and this taking-in switch display part 27a is pushed, While a sound effect is generated, color of combination appointed display line b-b of the bet numeral part 12c and the middle where the number of bets of the taking-in numeral part 19a game display 10 "5" was displayed changes. At the time of this number of bets "5", it is supposed that only combination of a display on combination appointed display line b-b of a middle sequence is effective as a game result.

[0019]When the taking-in switch display part 27b is a switch which sets the number of bets of a ball as "10" and this taking-in switch display part 27b is pushed, While a sound effect is generated, the color of combination appointed display line b-b of the bet numeral part 12c and the middle where the number of bets of the taking-in numeral part 19b and the game display 10 "5" was displayed changes, and also. The color of combination appointed display line f-f of the bet numeral part 12f as which the number of bets "10" was displayed, and the shape of upper inverse triangle changes. At the time of this number of bets "10", the combination of the display on combination appointed display line b-b of a middle sequence becomes effective, and also it becomes effective [the combination of the display along the V character-like line of combination appointed display line f-f].

[0020]When the taking-in switch display part 27c is a switch which sets the number of bets of a ball as "15" and this taking-in switch display part 27c is pushed, While a sound effect is generated, the color of combination appointed display line b-b of the bet numeral parts 12c and 12f as which the number of bets of the taking-in numeral part 19c and the game display 10 "5" and "10" were displayed, and a middle sequence, and combination appointed display line f-f of the shape of upper inverse triangle changes, and also. The color of combination appointed display line g-g of the bet

numeral part 12g as which the number of bets "15" was displayed, and lower triangular shape changes. At the time of this number of bets "15", the combination of the display along the V character-like line of combination appointed display line f-f of the combination of the display on combination appointed display line b-b of a middle sequence and the shape of upper inverse triangle becomes effective, and also. It becomes effective [the combination of the display along the reverse V character-like line of combination appointed display line g-g of a lower triangle].

[0021]When the taking-in switch display part 27d is a switch which sets the number of bets of a ball as "20" and this taking-in switch display part 27d is pushed, The bet numeral parts 12c, 12f, and 12g as which the number of bets of the taking-in numeral part 19d and the game display 10 "5", "10", and "15" were displayed while the sound effect was generated, The color of combination appointed display line b-b of the middle, combination appointed display line f-f of the shape of upper inverse triangle, and combination appointed display line g-g of lower triangular shape changes, and also. The color of combination appointed display line a-a of the bet numeral parts 12b and 12d as which the number of bets "20" was displayed, an upper row sequence, and a lower-berth sequence, and c-c changes. The combination of the display [time of this number of bets "20"] on combination appointed display line b-b of a middle sequence, The combination of the display along the reverse V character-like line of combination appointed display line g-g of the combination of the display along the V character-like line of combination appointed display line f-f of the upper inverse triangle and a lower triangle becomes effective, and also. The combination of the display on combination appointed display line a-a of an upper row sequence and a lower-berth sequence and b-b becomes effective.

[0022]When the taking-in switch display part 27e illustrated as the maximum selecting means is a switch which sets the number of ball bets as "25" and this taking-in switch display part 27e is pushed, The bet numeral parts 12c, 12f, 12g, 12b, and 12d as which the number of bets of the taking-in numeral part 19e and the game display 10 "5", "10", "15", and "20" were displayed, Combination appointed display line b-b of the middle, combination appointed display line f-f of the shape of upper inverse triangle, The color of combination appointed display line a-a of combination appointed display line g-g of lower triangular shape, an upper row sequence, and a lower-berth sequence and c-c changes, and also. ** and upward-slant-to-the-right slant combine [the bet numeral parts 12a and 12e and the lower right where the number of bets "25" was displayed], and the color of appointed display line d-d and e-e changes. The combination of the display [time of this number of bets "25"] on combination appointed display line b-b of a middle sequence, The combination of the display along the V character-like line of combination appointed display line f-f of the upper triangular shape, ** and slant upward slanting to the right combine, and the lower right besides the combination of the display on combination appointed display line a-a of the combination of the display along the reverse V character-like line of combination appointed display line g-g of a lower triangle, an upper row sequence, and a lower-berth sequence and c-c becomes effective [the combination of the display on appointed display line d-d and e-e].

[0023]The game informative label part 28 of the dot-matrix display type is formed in the front-face side of said upper housing 2C as an information display. A dot-matrix indication of an informative label (message), misbranding, etc. about a game is given at this game informative label part 28, respectively.

[0024]The number setting device 29a of rates and the close reset pin inserting part 29b for adjusting the probability of occurrence of "great success" are provided by inserting and turning a key (graphic display abbreviation) to the left of said prize mode display 28a.

[0025]The ball feed port 1a is established in the upper wall part of the case body 2A, and the ball saucer 20 is projected and formed in the front back lower part of front case 2B at the near side. The ball exit 21 is established in the upstream inner of this ball saucer 20, and the downstream of the ball saucer 20 leads to game device 1 inside via the entrance slot mentioned later. The ash pan 1b is installed in the left-hand side of the front face of the case body 2A lower part.

[0026]The following game actions are performed by control means (after-mentioned), and mechanical and electric constitution, such as a computer system by which the game device by which outline composition was carried out as mentioned above was set as it.

[0027]First, in the state in front of the game to which the power supply was supplied, the rotating drum device 50 (after-mentioned) for variable displays as one component of the variable display device on the game display 10 back side has stopped, The injection switch display part 23 projects on the game display 10, and also the advertising display and the simulation (simulation) display have projected on the game display 10 whole.

[0028]If it is put into a game ball (graphic display abbreviation) by the saucer 20 in this state and the injection switch display part 23 is pushed, while a game ball will be swallowed into the game device 1 from the entrance slot on the right-hand side of the saucer 20 (after-mentioned), An advertising display, a simulation display, etc. of the game display 10 disappear, As the variable display windows 11A, 11B, and 11C, a center serves as a transparent window and around it, Newly The bet numeral part 12 (12a-12g), combination appointed display line a-g, The start switch display 14, the stop displays 15a-15c, the stop switch displays 25a-25c, The completion display 13A, the score display part 13B, the injection switch display part 23, the odd ball display 24, the reservoir numeral part 16, the settlement-of-accounts switch display part 17, the auto display 18a, Graphic display of the auto switch display 18b, the taking-in switch display parts 27a-27e, and the taking-in numeral parts 19a-19e is carried out.

[0029]The game ball swallowed in the game device 1 is carried out within the limits to a prescribed number (for example, 750 pieces), and is memorized by the storage parts store (RAM811) which the understood pitch count illustrates as a memory measure of a control device (after-mentioned). Digital display of the storage number is carried out to the reservoir numeral part 16. When the understood pitch count exceeds a predetermined number (for example, 750 pieces), the ball of a part which exceeded is returned into the ball saucer 20 from the ball exit 21. Even if the understood pitch count is below a prescribed number (for example, 750 pieces), when the understood pitch count is not a multiple of "5", When the excessive odd ball arises, the color of the odd ball display 24 changes, it tells that the odd ball arose, and the odd ball is returned into the saucer 20 from the ball exit 21. When [the] returned, the odd ball display 24 returns to the original color.

[0030]If one of the taking-in switch display parts (27a-27e) corresponding to the number of bets which a game person wishes is pushed in this state, The color of the taking-in numeral part (19a-19e) corresponding to the pushed taking-in switch display part changes, the game ball of the number of bets is incorporated, and the digital display of the reservoir numeral part 16 turns into digital display from which only the part of the number of bets was subtracted. Simultaneously, it combines with the bet numeral part 12 (12a-12e) corresponding to the number of bets, and the appointed display line (a-g) is turned on.

[0031]In this state, if a game person operates the start switch display 14, while the color of the start switch display 14 changes, the color of the stop displays 15a-15c will change, Three internal drums (after-mentioned) start rotation independently mutually, and change of the display in the variable display windows 11A and 11B and 11C is started in connection with it. While a drum (after-mentioned) is suspended sequentially from the left after specified time elapse from the time of the start and the stop displays 15a-15c are returned to the original color, it is decided sequentially from the display of the left variable display window 11A. It corrects, Before the specified time elapse, by a game person, when the stop switch displays 25a-25c are pushed, rotation of the drum in the variable display window (11A, 11B, 11C) on the pushed stop switch display (15a, 15b, 15c) is suspended -- the variable display window (11A and 11B.) 11C) While change of an inner display is suspended and deciding, the stop displays 15a-15c return to the original color. An order which the stop switch display (25a, 25b, 25c) pushes may be performed in which order.

[0032]When a game person repeats the above-mentioned operation, a game is performed, but. The result of the game, The variable display windows 11A and 11B at the time of a stop, the combination

of the display in 11C (when a game person pushes a taking-in switch display part (27a-27e) at the time of the start of the game.) the combination of the display along the specified combination appointed display line (a-g) — restricting, while a sound effect will be emitted and the number of awarded balls will be displayed on the score display part 13B, if it corresponds to either of the prize modes defined beforehand, The color of the materialized display line (either of a-g) changes further as a prize mode formation display, and the awarded balls of the number according to the prize mode are awarded. In that case, when it corresponds to two or more prize modes, two or more sorts of awarded-balls numerals are made by the score display part 13B, and the awarded balls of the total number adding the number of awarded balls to each prize mode are awarded to it. While the new number of reservoirs which added the number of awarded balls to the number of reservoirs in front of the game is memorized by the storage parts store of a locking device (after-mentioned) until the reservoir numeral of the reservoir numeral part 16 serves as a predetermined number (for example, 750 pieces), an updating indication of the awarded balls is given at the reservoir numeral part 16. [0033]In that case, when the reservoir numeral of the number memory of reservoirs in front of the game (the number memory of reservoirs) and the reservoir numeral part 16 exceeds "750." The awarded balls exceeding the "750" of a part are emitted into the saucer 20 via the ball exit 21, and the reservoir numeral of the number memory of reservoirs and the reservoir numeral part 16 is returned to "750."

[0034]When the combination of the display in the variable display windows 11A and 11B and 11C turns into combination (for example, "7, 7, 7" should put together) of the display which generates "great success" especially as a result of the game, "great success" occurs and the sound effect which tells generating of the "great success" is emitted. Simultaneously, a score display (awarded-balls numeral) is made by the score display part 13B, awarded-balls discharge of a predetermined number (for example, 90 pieces) is performed, and it shifts to the bonus game of the following "great successes" after an appropriate time.

[0035]At the time of the bonus game of this "great success", the color in the auto display 18a changes, The number of incorporation as the number of bets per time is automatically set to "5", and the color of the bet numeral part 12c as which "5" was displayed, and combination appointed display line b-b of the middle changes, and it becomes effective [the combination on combination appointed display line b-b of the middle]. the combination (for example, "JAC, JAC, JAC" should put together) of a display predetermined in during the period of this "great success" to the combination appointed display line b-b top of this middle — a set — easy — it becomes and that combination gathers — it is alike and the prize balls of a predetermined number (for example, 90 pieces) are awarded. Such a bonus game will be performed to prescribed frequency (for example, 66 times) during "the great success." However, before completing the prescribed frequency, when the number of awarded-balls acquisition of the game person in the period of the "great success" (part which actually increased) reaches a prescribed number (for example, 4000 pieces), it is returned to the usual game condition at the time. When other prize modes occur during the game of this "great success", also at the time of a game, the same awarded balls are usually awarded.

[0036]Combination of a display which combination of a display in the variable display windows 11A and 11B and 11C into the usual game makes generate "per inside." When a display of "BAR, BAR, BAR", and "*, *, *" will be (for example, should put together), a sound effect which "per inside" occurs and tells generating "per inside" is emitted. Simultaneously, a score display is made by the score display part 13B, awarded-balls discharge of a predetermined number (for example, 90 pieces) is performed, and it shifts to a bonus game "per inside" after an appropriate time. [following]

[0037]A bonus game "per inside" as well as a bonus game of the above "great success" is performed. [this] However, the number of times and the awarded-balls acquisition number of a bonus game are restricted rather than being able to set to a bonus game of the above "great success", for example, number-of-times restrictions of a bonus game are 15 times, and awarded-balls acquisition number restrictions are made into 1000 pieces. [/ "per inside"] [this]

[0038]When combination of a display in the variable display windows 11A and 11B and 11C into the usual game turns into combination (for example, a picture of "lemon, lemon, and lemon" should put together) of a display which generates "per smallness", a sound effect which "per smallness" occurs and tells generating "per smallness" is emitted. Simultaneously, a score display is made by the score display part 13B, awarded-balls discharge of a predetermined number is performed, and it shifts to a bonus game "per smallness" after an appropriate time.

[0039]A bonus game "per smallness" as well as a bonus game of the above "great success" is performed. [this] However, the number of times of a bonus game "per smallness" is restricted compared with the number of times of a bonus game in the above "per inside", for example, a bonus game is ended once by a limitation. [this]

[0040]Usually, when combination of a display in the variable display windows 11A and 11B and 11C into a game becomes a mode which generates other general prize modes, a score display according to the prize mode is made by the score display part 13B, awarded balls are awarded to it, and the above bonus games are not performed in it.

[0041]According to advance of the above-mentioned game, a message indicator is made by the game informative label part 28 in a dot display.

[0042]If the auto switch display 18b is pushed after pushing a desired taking-in switch display part (27a-27e), when it is troublesome to push the taking-in switch display parts 27a-27e one by one, to risk them into a game, and to perform several sets, While color of a taking-in numeral part corresponding to the taking-in switch display part changes, color of the auto display 18a will change and it will be in an auto state. A game will be continuously performed after this auto setting out with that set number of bets. If a game person pushes the auto switch display 18b once again to cancel the auto state, the original color will be returned for the auto display 16, and an auto state will be canceled.

[0043]When many awarded balls are discharged by generating of a prize mode and a schedule ejecting number is reached, graphic display of the character of completion is carried out to the completion display 13A.

[0044]If the settlement-of-accounts switch display part 17 is pushed when a game person wants to pay, the ball of the number currently displayed on the reservoir numeral part 16 and the same number will be returned into the saucer 20 via the ball exit 21, and the display of the reservoir numeral part 16 will also return to "zero." Simultaneously, the display of the game display 10 returns to an advertising display or a simulation display.

[0045]The vertical section side view in the state where the above-mentioned game device 1 was installed in the island facility 600 of an amusement center is shown in drawing 2.

[0046]The drum mounting base 2a is formed in the case body 2A of the game device 1. The rotating drum device 50 is installed in this drum mounting base 2a upper part, and the control device 800A is installed in the bottom.

[0047]The terminal box 41 which performs an exchange of a controlling device (outside of a figure) and data is installed in the lower posterior-wall-of-stomach part in the case body 2A. The game ball taking-in equipment 42 which performs management through figures of the game ball taken in via an entrance slot (after-mentioned) from the above-mentioned saucer 20 is installed in the before [the lower part] side in the case body 2A. After the incorporated game ball is calculated by the taking-in equipment 42, it is collected on the recovering spout 601 on the island facility 600 lower back side via the tap hole 1b of the case body 2A back side lower part. The storage tank 43 for awarded balls is installed in the front wall part of the upper part in the case body 2A, and the lead-out conduit 44 which makes awarded balls draw in this storage tank 43 is installed in the lower part. The above-mentioned ball feed port 1a is established in the upper wall part of the case body 2A.

[0048]The above-mentioned game display 10 is formed in the state where it drew in the position corresponding to the front of said rotating drum device 50 a little in the upper part of frame-front-cover 2B.

[0049]The transparent panel 251, the display panel 252, the fluorescent lamp 47, and the ball saucer 20 grade are installed in the front-face side of the lower part of frame-front-cover 2B. Inside [lower] frame-front-cover 2B corresponding to the position in which the ball saucer 20 is installed, the ball derivation port 48 which passes to the above-mentioned ball exit 21 (drawing 1) is formed.

[0050]***** 700 is installed in the upper part in the island facility 600, and ***** 701 is installed in the lower part of this ***** 700. The shot 702, the catch equipment 703 with a calculating machine, and the guide 704 are attached to the lower part of ***** 701 in order. Said catch equipment 703 with a calculating machine was fixed to the back side of the island facility 600, and said guide 704 has resulted above the storage tank 43 for awarded balls via the above-mentioned ball feed port 1a of the case body 2A upper part. And while management through figures of the reserve ball in ***** 700 is carried out by the catch equipment 703 with a calculating machine via ***** 701, the shot 702, the catch equipment 703 with a calculating machine, and the guide 704, a ball is caught in the storage tank 43.

[0051]a ball which fell from the above-mentioned storage tank 43 in the back side upper part of the case body 2A is made to flow into the back side of the case body 2A, and are made to collect to up to the recovering spout 601 of the island facility 600 back-side lower part — it falls and the ball collection port 1c is formed.

[0052]A back side exploded perspective view of front case 2B is shown in drawing 3.

[0053]The opening 210 for LCD panel installation is formed in the front side upper part of front case 2B, and the opening 220 for display panel installation illustrated as a window part is formed in the lower part. The support 201,201,203,203 for attachment protrudes on the right-and-left back side of the opening 210,220, respectively, and the stud bolt 202,202,204,204 is implanted in the central part of these each support 201,201,203,203 for attachment.

[0054]And via the back side to the rubber packing 230 in the upper opening 210, The display panel 252 is arranged for LCD panel 235 illustrated as the front panel via the transparent panel 251 at the lower opening 220, respectively from the back side, It is being fixed to the back side of front case 2B so that it may explain to those back sides in detail in the state where the ***** oscillating perception frame 240 has been arranged, to a predetermined interval later.

[0055]The entrance slot 20b is formed in the before [the lower part] side of front case 2B, and the game ball taking-in equipment 42 is attached to the back side of this entrance slot 20b.

[0056]The fixing structure of LCD panel 235 is shown in drawing 4 as a decomposition vertical section side view.

[0057]As shown in drawing 3 and drawing 4, the inside covers the perimeter, the opening 210 for game display setting out of front case 2B is bent back, and the point is the packing fitting part 211.

[0058]Said rubber packing 230 is formed in the rectangular frame shape from which the inside became an opening as shown in drawing 3, The step 232 for installation for the fitting groove 231 which can carry out outer fitting to the packing fitting part 211 of said front case 2B as shown in drawing 4 to install LCD panel 235 shown in drawing 4 in the rear inside covers the whole circumference, respectively, and is provided in the front side.

[0059]Said LCD panel 235 serves as a form size which can be stored in said step 232 for installation of said rubber packing 230, and the bolt through hole 237a which can fit into said stud bolt 202 of front case 2B is formed in the right-and-left position. Other composition of this LCD panel 235 is described in detail later.

[0060]Said oscillating perception frame 240 is formed in rectangular frame shape which has the opening 241,242, respectively in a position corresponding to said LCD panel 235 and the display panel 252. A front side around [outside] the upper part opening 241 serves as the section L character-like concave part 243, and this concave part 243 is greatly formed the 1 surroundings from an outside of said rubber packing 230. Into said concave part 243, as shown in drawing 4, two or more vibration switches 244 are suitably installed with arrangement. The bolt through hole 245 which can fit into said stud bolt 202 of front case 2B is formed in a right-and-left position of the

oscillating perception frame 240.

[0061]The marks 251a, 252a, 253, and 254,255,256,257 among drawing 4, It is the rubber washer, the rubber washer, the coil spring, the rubber washer, the rubber washer, iron washer, and collar nut which constitute the mounting means for attaching the rubber packing 230, LCD panel 235, and the oscillating perception frame 240 to front case 2B, respectively.

[0062]The vertical section side view in the state where LCD panel 235 was attached to front case 2B is shown in drawing 5.

[0063]The game display 10 is installed in the upper part opening 210 of front case 2B as follows.

[0064]That is, while the rubber packing 230 is arranged first at the state where outer fitting of the fitting groove 231 was carried out to the packing fitting part 211 of the opening 210, outer fitting of the rubber washers 251a and 251 is carried out to the stud bolt 204,204. Then, LCD panel 235 is stored in the step 232 for installation by the side of the back of the rubber packing 230 by carrying out outer fitting of the bolt through holes 237a and 237a to the stud bolt 204,204. After that, after outer fitting of the rubber washer 252a, the coil spring 253, and the rubber washer 254 is carried out to the stud bolt 204 at order, the oscillating perception frame 240 is installed in the bolt through hole 245, after the stud bolt 204 has let it pass.

[0065]And by carrying out outer fitting of the rubber washer 254 and the iron washer 256 to the stud bolt 204,204 on either side at order, and screwing the collar nut 257 in the stud bolt 204 on either side after an appropriate time after that, LCD panel 235 and the oscillating perception frame 240 are attached to the back side of front case 2B via the rubber packing 230.

[0066]In the state where it was attached, the sensing piece 244a of the vibration switch 244 is [predetermined interval] separated from LCD panel 235, and the coil spring 253 is shrunk moderately and holds moderate cushioning properties.

[0067]In this state, if LCD panel 235 is strongly pushed by game person, this LCD panel 235 will resist power of the coil spring 253, and will retreat. One [the microswitch 244] with the retreat when LCD panel 235 carries out elastic change of the sensing piece 244a of the microswitch 244, While the input signal is inputted into the control device 800A, and misbranding is made by the game informative label part 28 and changing into a state in which a game is impossible, Since a control center (outside of a figure) is reached, injustice is detected immediately and the important occurrence of LCD panel 235 being damaged can be prevented.

[0068]The setting structure of LCD panel 235 is shown in drawing 6 in detail as a partial decomposition perspective view.

[0069]In the figure, after the rubber packing 230 is first attached to the packing fitting part 211 of the opening 210, LCD panel 235 is attached via the rubber washer 251a. Then, the oscillating perception frame 240 is attached via the rubber washer 252a, the coil spring 253, and the rubber washer 254. And after that, the rubber washer 255 and the iron washer 256 intervene, and the rubber packing 230, LCD panel 235, and the oscillating perception frame 240 are being fixed to the back side of front frame 2B by screwing the collar nut 257 in the stud bolt 202.

[0070]The structure for attachment of LCD panel 235 is shown in drawing 7.

[0071]As LCD panel 235 is shown in the figure, it comprises the metal flask 237 for reinforcement attached to the circumference of the main part 236 of an LCD panel (liquid crystal display panel), and this main part 236, and said bolt through holes 237a and 237a are formed in the right and left of the metal flask 237.

[0072]The display information by which graphic display is carried out to the main part 236 of an LCD panel of LCD panel 235 during a game action, and its display position are shown in drawing 8.

[0073]The main part 236 of an LCD panel is made from the part or component with the transparent whole, and the variable display windows 11A, 11B, and 11C as three transparent variable displays appear in the center at the time of a game.

[0074]It risks on the left of the variable display window 10, graphic display of the numeral part 12 (12a-12g) is carried out, and graphic display of "5", "10", "15", and the number of bets of is

carried out to these each bet numeral part 12 (12a-12g).

[0075]Graphic display of combination appointed display line a-g corresponding to the number of bets by which graphic display is carried out to each bet numeral part 12 (12a-12g) is carried out.

[0076]Under said bet numeral part 12, graphic display of the start switch display 14 is carried out. Under each variable display windows 11A, 11B, and 11C, graphic display of the stop displays 15a-15c and every one pair each of stop switch displays 25a-25c is carried out.

[0077]The completion display 13A is made the left of the main part 236 of an LCD panel, and graphic display of the score display part 13B is carried out to an upper center, respectively. The reservoir numeral part 16 is made the bottom of it, and graphic display of the settlement-of-accounts switch display part 17 is further carried out for the injection switch display part 23 and the odd ball display 24 to the lower part in the right direction upper part, respectively. Graphic display of the auto display 18a and the auto switch display 18b is carried out to the right direction lower part. Graphic display of the taking-in switch display parts 27a-27e and the taking-in numeral parts 19a-19e is carried out to the lower part in the state corresponding to 1 to 1.

[0078]A perspective view shows the structure of the main part 236 of an LCD panel to drawing 9.

[0079]The main part 236 of an LCD panel serves as a transparent plywood on which the dot-matrix plotting board 236A (back side) and the matrix switch board 236B (side front) were piled up, as shown in drawing 9. The LCD panel control device 236C illustrated as a liquid-crystal-display control means is attached to the one side part. With the control device 800A mentioned later, the LCD panel control device 236C constitutes a liquid-crystal-display control means, and controls a display of the game display 10 which consists of a LCD (liquid crystal display) transparent state change panel in which a liquid crystal display element was allocated. For example, a display of the above-mentioned variable display windows 11A, 11B, and 11C, a display of the bet numeral parts 12a-12g, a display of combination appointed display line a-g, etc. are controlled.

[0080]And a dot-matrix indication of the various displays etc. which were shown in drawing 8 is given at said dot-matrix plotting board 236A. Matrix arrangement of the switch group of matrix arrangement by which a position is decided by X coordinate shown in the figure and a Y coordinate is carried out to the matrix switch board 26B.

[0081]By the way, pushing the switch display parts 14, 17, 23, 25a-25c and 27a-27e (drawing 8) displayed on above-mentioned LCD panel 235, The above-mentioned matrix switch board 236B will be pushed, it is decided by the X coordinate (0, 1, 2, ...) and Y coordinate (0, 1, 2, ...) of the matrix switch plotting board 236B any the pushed switch display part is, and the control corresponding to it is made.

[0082]Said LCD panel control device 236C to the below-mentioned control device 800A illustrated as a liquid-crystal-display control means. The signal (SW ON signal), one [either of said switch display parts 14, 17, 23 25a-25c and 27a-27e (drawing 8)], While transmitting X coordinate signal and the Y coordinate signal for specifying the switch display part [one / a part], the role which carries out graphic display to the dot-matrix plotting board 236A in response to the video signal from the control device 800A (after-mentioned) is played.

[0083]The exploded perspective view which took out the rotating drum device 50, the control device 800A, the terminal box 41, and the electric power unit 810 grade is shown in drawing 10 from the inside of the case body 2A which constitutes the game device 1.

[0084]As for the case body 2A, the outline is constituted by Kamiita part 2b, the side plate parts 2c and 2d on either side, the bottom plate part 25e, the backboard part 2f, and the front inferior lamella part 2g. The above-mentioned drum mounting base 2a is installed in the middle in the case body 2A. And the above-mentioned ball feed port 1a is established in Kamiita part 2b, the account of the upper falls in the backboard part 2f, and the ball collection port 1c is formed. The above-mentioned tap hole 1b is formed between the lower end of the backboard part 2f, and the bottom plate part 2e.

[0085]The three pulse motors 515 and 525 which give torque to the rotating drum (drum)

511,521,531 of the variable display units 51, 52, and 53 in which the rotating drum device 50 was installed in the housing 55 and this housing 55, and these variable display units 51, 52, and 53, It was attached as the upper part of 535 and the variable display units 51, 52, and 53 was covered, and it fell, and has the ball invasion prevention cover 54. And as shown in drawing 2, the front side of the bottom plate 551 of the housing 55 is installed on the drum mounting base 2a in the state where the predetermined angle ($=\alpha^{**}$) rose. So that it may fall, the ball invasion prevention cover 54 may cover the upper part of the rotating drum device 50 thoroughly to the figure as a chain line shows, and the ball which fell from the storage tank 43 grade may not enter in the rotating drum device 50 in the state where it was installed, The role which it falls, is led to the ball collection port 1c, and are made to collect to up to the recovering spout 601 of an island facility 600 back-side lower part is played.

[0086]The control device 800A is attached to the drum mounting base 2a bottom in the case body 2A, and the electric power unit 810 is installed on the bottom plate part 2e in the case body 2A.

[0087]The injection signal relay connector 412a for connecting with an external controlling device at the terminal box 41, While the expenditure signal relay connector 412b, the accessory (size, inside, smallness) signal relay connector 412c and the checking drum test signal feed-thru connector 412d at the time of an assembly, and the drum driving signal feed-thru connector 412e are formed, the electric power switch 411 is attached. 1 to 1 is made to correspond to the left of these each feed-thru connectors 412a-412e, and the indication plates 411a-411e in which the character of "an injection", "paying out" out, the "accessory", the "drum stop", and the "drum drive" was displayed are installed. And this terminal box 41 is attached inside 2 f of backboards of the case body 2A.

[0088]The partial decomposition perspective view of the rotating drum device 50 stored in the case body 2 is shown in drawing 11.

[0089]The drum housing 55 comprises the bottom plate part 551 and the back plate part 552 which stood up to a rear end part of this bottom plate part 551 at an abbreviated perpendicular.

[0090]The bolt through holes 551a-551c and 552a-552c for variable display unit attachment are formed in the bottom plate part 551 and the back plate part 552, respectively, and the couple protrusion of the positioning part 551d which positions the central variable display unit 52 is carried out in the center of the bottom plate part 551. The concave wiring board insert portion 553 is formed in a near-side end of the bottom plate part 551, and the wiring board insertion groove 553a is formed in a facing wall section under this wiring board insert portion 553.

[0091]The variable display unit 51 (52, 53) comprises the rotating drum 511 supported in the housing 512,513 of a right-and-left couple, and these housings 512,513 enabling free rotation.

[0092]The housing 512 of one of these is provided with the side plate part 512a, the backboard part 512b, and the bottom plate part 512c, and the pivot 514 protrudes in the center of the inside of the side plate part 512a. The attaching piece part 512d is formed in the upper row, the middle, and a lower-berth position of an inner side end of the backboard part 512b in parallel with the side plate part 512a, it ****s in each attaching piece part 512d, and the hole 512e is formed. It is made to correspond to the backboard part 512b with a position of the bolt through hole 552a of the back plate part 552 of said drum housing 55, and ****s, and 512 f of holes are provided, and it is made to correspond to the bottom plate part 512c with a position of the bolt through hole 551a of the bottom plate part 551 of said drum housing 55, and ****s, and 512 g of holes are provided.

[0093]Another housing 513 is provided with the side plate part 513a and the backboard part 513b. The pulse motor 515 as a driving source is installed in the center of the side plate part 513a, and as shown in drawing 12 in detail, the transmission piece 515b protrudes on the point of the axis of rotation 515a of the pulse motor 515. The drum position detector 516 is installed in the position which is distant from the center of the side plate part 513a inside. It is made to correspond to the backboard part 513b with the position of the bolt through hole 552a of the back plate part 552 of said drum housing 55, and ****s, and the hole 513c is formed, the side plate part 513a is made to correspond to the position of the screw-thread hole 512e of the attaching piece part 512d of said

housing 512, it ****s, and 513 d of holes are provided.

[0094]The lead 517 of said pulse motor 515 and the drum position detector 516 is attached firmly by the Cordova inda 517a in the inside of the side board 513a, as shown in drawing 12, and as shown in drawing 4, the connector 517b is attached to the lead 517.

[0095]Said rotating drum 511 is provided with the tubed part 511e by which integral moulding was carried out via the central boss section 511a, this boss section 511a, and the arm part 511b, and the band-like discrimination expression component 518 continues for 360 degrees, and it is attached to a periphery of the tubed part 511e. Fitting of said boss section 511a is carried out to said pivot 514 and the axis of rotation 515a of the pulse motor 515, and rotational motion power is transmitted from the pulse motor 515. While 511 f of bosses are formed in the boss section 511a, 511 g of fitting grooves which engage with the transmission piece 515b of the axis of rotation 515a are formed.

[0096]The detecting piece 511d detectable with said drum position detector 516 protrudes on one of said the arm parts 511b. With rotation of the rotating drum 511, when the detecting piece 511d is detected by the drum position detector 516, rotation of the rotating drum 511 is detected.

[0097]The flange like parts 511h and 511i are formed in both ends of said tubed part 511e, and said discrimination expression component 518 is attached among these flange like parts 511h and 511i.

[0098]In the surface of said discrimination expression component 518, various displays of characters, such as "7" and "BAR", a "watermelon", "lemon", a picture of a "bell", etc. are made for every constant interval.

[0099]And fitting of the boss section 511a of the rotating drum 511 is carried out to the pivot 514 and the axis of rotation 515a of the pulse motor 515, and by supporting the rotating drum 511 from both sides by the housings 512 and 513, where unitization is carried out, it is installed on the drum housing 55.

[0100]It is attached where the backboard part 513b of the housing 512 is piled up inside the backboard part 513b of the housing 513, as it is shown in drawing 13, when attaching the variable display unit 51 (52, 53) to the drum housing 55.

[0101]Thus, the three variable display units 51, 52, and 53 are installed in the state where it separated the constant interval every, on the drum housing 55. In that case, especially the central variable display unit 52 is installed in the state where it was positioned so that it might be settled in positioning part 551d-551d on the bottom plate 551 of the drum housing 55.

[0102]On the wiring board 554, 555 d is mutually installed with the contact buttons 554a-554c at switch-on, To the contact button 554a, the connector 517a attached to the pulse motor 515 of the 1st variable display unit 51 and the lead 517 of the drum position detector 516, To the contact button 554b, the connector 527a attached to the pulse motor of the 2nd variable display unit 52 and the lead 527 of a drum sensor, The connector 537a attached to the pulse motor of the 3rd variable display unit 53 and the lead 537 of a drum sensor is connected to the contact button 554c, respectively. The input and output connectors 816 attached to the lead 815 of the control device 800A are connected to the contact button 555d.

[0103]By carrying out slide insertion of the wiring board 554 of the above-mentioned composition from a transverse direction all over the insertion groove 553a of the wiring board insert portion 553 of the drum housing 55, it is installed during the wiring board insert portion 553.

[0104]The back mechanism of the game device 1 is shown in drawing 14 as an explanatory view.

[0105]The upper tank 43 which stores a reserve ball (prize balls before expenditure) is installed in the upper part of the rear face of the game device 1. Besides, in the tank 43, when the quantity of the reserve ball in the tank 43 is detected and the quantity of that reserve ball decreases, the dog sensor 431 which takes out the insufficient signal of a reserve ball to a controlling device (outside of a figure), and requires supply of a reserve ball is installed. The step board lever 432 given the rotation returning force to the direction which makes the pin 432a with an axis the lower part in this upper tank 43, and in which a free edge side goes up with the return spring of a graphic display abbreviation is installed, and the completion detector 433 is installed directly under it. If the step

board lever 432 goes up and the completion detector 433 detects it, it will be told that the detecting signal was inputted into the controlling device besides a figure, and the discharge predetermined value of the ball was completed.

[0106]As the downstream opening of the above-mentioned upper tank 43 is attended, the lead-out conduit 44 is connected. This lead-out conduit 44 makes a U-turn, carrying out a declivity gently, it is a form which follows this at that flowing-down end, and the recovering spout 441 and the awarded balls emission chute 442 are installed.

[0107]the awarded balls which flow in the middle of said lead-out conduit 44 in this lead-out conduit 44 are tamed — it carries out [****] and 443,444 is installed. The awarded-balls discharge detector 445 which detects that discharge of awarded balls is performed near the trailer of the lead-out conduit 44, and the solenoid-type awarded-balls exhaust (discharge solenoid) 446 awarded-balls discharge is made to perform are installed. The solenoid-type ball omission switching arrangement (ball omission change solenoid) 447 which switches whether a ball is poured to which [of the recovering spout 441 and the awarded balls emission chute 442] side is installed in the fork road of the recovering spout 441 and the awarded balls emission chute 442.

[0108]Carrying out the opening of the lower end part of the recovering spout 441 on the recovering spout 601 (drawing 2) of the island facility 600, the lower end part of the awarded balls emission chute 442 is open for free passage with the ball exit 21. The overflow detector 448 is installed in the downstream of the awarded balls emission chute 442, When one cup of prize balls collect into the saucer 20 and prize balls collect even in a downstream into the awarded-balls lead-out conduit 442, it is detected by the detector 448, the overflow indicator lamp of a graphic display abbreviation, etc. light up, and a game person is told about the state.

[0109]At the right end of the upper part of the rear face of the game device 1, it kills with the number setting device 29a of rates, and the reset pin inserting part 29b is formed.

[0110]Above the playing-ball entrance 20b established in the downstream of the saucer 20, the solenoid-type playing-ball entrance closing mechanism (opening-and-closing solenoid) 20c is installed. When it operates when the playing-ball entrance blocking plate 20d always descends, the playing-ball entrance closing mechanism 20c has closed the playing-ball entrance 20b and the playing-ball ON switch display part 23 (drawing 1) is pushed, and the blocking plate 20d goes up, the playing-ball entrance 20b is opened wide.

[0111]***** 20e is formed in the state where it was open for free passage at the playing-ball entrance 20b, and the number detector 20f of reservoirs which detects the number of game balls which flow down in ***** 20e is installed in the downstream from ***** 20e.

[0112]A control system of the above-mentioned control device 800A is shown in drawing 15.

[0113]What attaches and shows the mark 800 in drawing 15 is a central processing unit (CPU) which constitutes respectively a storage number calculating means and an excess amount emission-control means.

[0114].Along the address data bus from the central processing unit 800, as read-only memory slack ROM810 and a memory measure. Memory slack RAM811 in which read-out and the writing to illustrate are possible, the video display controller (VDG) 812, the input buffer 830, the latch circuitry 860, and sound generator 820 grade are installed.

[0115]In said ROM810, fixed data, such as a game program of a game or each game "great success", "per inside", and "per smallness", a simulation display program before a game, and the number program of rates, are usually memorized. The number of reservoirs, the number of bets, etc. are memorized by RAM811 if needed. The nonvolatile memory 813 is connected to RAM811 in preparation for the time of interruption to service. When a power supply falls below in a reference bolt, the hold stores of the stored data in RAM811 are carried out to this nonvolatile memory 813.

[0116]As shown in drawing 15, in said input buffer 830 The drum position detector 516,526,536, the number setting device 29a of rates, The reset detector 29b, the completion detector 433, the discharge detector 445, the dock sensor 431, the number detector 20f of reservoirs, It is connected

via the low pass filters 831, such as an output terminal of an X coordinate of a matrix switch board of the overflow detector 447 and the LCD panel control device 236c shown in drawing 9, and an output terminal of a Y coordinate. A switch signal terminal and the vibration switch 244 of the LCD panel control device 236C which are shown in drawing 9 are connected to an interruption input (INT) terminal of the central processing unit 800 via the low pass filter 831.

[0117]It is connected to a video signal terminal of the LCD panel control device 236c shown in said video display controller (VDG) 812 at drawing 9.

[0118]The loudspeaker 822 is connected to said sound generator 82 via the amplifier 821.

[0119]In said output latch circuit 860, the entrance slot closing mechanism (opening-and-closing solenoid) 20c, The ball omission switching arrangement (ball omission solenoid) 447, the exhaust (discharge solenoid) 446, the game informative label part 28, the 1st – the 3rd pulse motor 515,525,535 are connected via the driver 861.

[0120]The above-mentioned control system acts as follows.

[0121]First, in a state in front of a game to which a power supply was supplied, Based on a fixed data program in ROM810, a display command signal is taken out from the central processing unit (CPU) 800 by the video display controller 812, An advertising display and a simulation display have projected on the LCD panel 235 whole as the game display 10 by sending the signal to a video signal terminal of the LCD panel control device 236C of drawing 9.

[0122]If the injection switch display part 23 is pushed after being put into a game ball into the saucer 20 in this state, the playing-ball conversion item from that injection switch display part 23 will be inputted into the central processing unit 800 via the low pass filter 831 and the input buffer 830. Based on the playing-ball conversion item input, a sound effect generating command signal is sent to the sound generator 820 from the central processing unit 800, and a sound effect is emitted from the loudspeaker 822 via the amplifier 821. Simultaneously, the Kaide force signals are sent to the output latch circuit 860 from the central processing unit 800, the entrance slot closing mechanism (opening-and-closing solenoid) 20c operates via the driver 861 based on the Kaide force signals, and the playing-ball entrance 20b (drawing 14) is opened.

[0123]If the playing-ball entrance 20b is opened, the game ball in the saucer 20 will flow into ***** 20e from the entrance slot 20b, and the game ball which flowed will be detected by the number detector 20f of reservoirs.

[0124]The detecting signal from the number detector 20f of reservoirs is inputted into the central processing unit 800 via the low pass filter 831 and the input buffer 830.

[0125]While a count is started by the central processing unit 800 based on the input signal, A display command signal is taken out from the central processing unit 800 by the video display controller 812, the signal is sent to a video signal terminal of the LCD panel control device 236c of drawing 9, and a display of LCD panel 235 as the game display 10 is changed into a game display.

[0126]And a storing command signal of said the count number is sent to RAM811, and the count number is memorized as the number of reservoirs. Simultaneously, a display command signal of the count number is sent to the output latch circuit 860 from the central processing unit 800, and the number of reservoirs is displayed on the reservoir numeral part 16 via the driver 861. In that case, when the number of reservoirs exceeds a predetermined number (for example, 750 pieces). A ball of a part which the exhaust 446 operated via the output latch circuit 860 and the driver 861 by the instructions from the central processing unit 800, and exceeded it is returned into the saucer 20 via the ball exit 21, and the number memory of reservoirs in RAM811 and a display of the reservoir numeral part 16 are returned to "750." The return number is detected by the discharge detector 445, the detecting signal is inputted into the central processing unit 800 via the low pass filter 831 and the input buffer 830, and counts, and is controlled.

[0127]When the number of the game balls which flowed from the entrance slot 20b is not a multiple of "5" below with a predetermined number (for example, 750 pieces) with a reservoir storage number and the number of displays of the reservoir numeral part 16, either, By the central

processing unit 800, the number of the odd balls is computed and the number is displayed on the odd ball display 24 via the output latch circuit 860 and the driver 861. The odd ball is returned into the saucer 20 via the ball exit 21, when the exhaust 446 operates based on the instructions from the central processing unit 800. The returned number is detected by the discharge detector 445, and when all the odd balls are returned, the odd ball display 24 is returned to the original color.

[0128]By conversion to said game display, the center of the game display 10 serves as a window transparent as the variable display windows 11A, 11B, and 11C, Around it, newly The bet numeral part 12 (12a-12g), combination appointed display line a-g, The start switch display 14, the stop displays 15a-15c, the stop switch displays 25a-25c, The completion display 13A, the score display part 13B, the injection switch display part 23, the odd ball display 24, the reservoir numeral part 16, the settlement-of-accounts switch display part 17, the auto display 18a, Graphic display of the auto switch display 18b, the taking-in switch display parts 27a-27e, and the taking-in numeral parts 19a-19e is carried out.

[0129]In this state, if it risks by a game person and the taking-in switch display parts 27a-27e for number specification are pushed alternatively, the switch one (SW ON) signal from that pushed switch display part will be inputted into the central processing unit 800 via an interruption (INT) terminal. While a sound effect is emitted from the loudspeaker 822 by the instructions from the central processing unit 800 based on the input signal, the number of bets is memorized in RAM811. While the number of bets is subtracted from the number of reservoirs memorized in RAM811 and the number of reservoirs after [that] being subtracted is memorized in RAM811 by the central processing unit 800, the new number of reservoirs is displayed on the reservoir numeral part 16 via the output latch circuit 860 and the driver 861. Simultaneously, a display command signal is sent to the output latch circuit 860 from the central processing unit 800, and the color of the bet numeral part 12 corresponding to it and combination display line a-g changes via the driver 861.

[0130]In this state, a game person's push of the start switch display 14 will input the switch one (SW ON) signal from that start switch display 14 into the central processing unit 800 via an interruption (INT) terminal. While a sound effect is emitted from the loudspeaker 822 by the instructions from the central processing unit 800 based on the input signal, An operation command signal is sent to the output latch circuit 860 from the central processing unit 800, When the 1st - the 3rd pulse motor 515,525,535 drive via the driver 861 and the 1st - the 3rd rotating drum 511,521,531 rotate, the variable display windows 11A and 11B of the game display 10 and change of the display in 11C are started.

[0131]After a drive start of the pulse motor 515,525,535, if specified time elapse is carried out, By sending a stop command signal to the output latch circuit 860 from the central processing unit 800, and stopping the 1st - the 3rd pulse motor 515,525,535 in order with a predetermined time interval via the driver 861, The 1st - the 3rd rotating drum 511,521,531 are suspended, and the variable display windows 11A and 11B of the game display 10 and change of a display in 11C are suspended. It corrects, Before specified time elapse after a drive start of the pulse motor 515,525,535, by a game person. When the stop switch displays 15a-15c are pushed, a switch one (SW ON) signal of the switch display part is sent to the central processing unit 800 via the low pass filter 831 and the input buffer 830. Based on the red light, a stop command signal is sent to the output latch circuit 860 from the central processing unit 800, The rotating drum 511,521,531 is suspended by stopping the pulse motor 515,525,535 according to an order that the switch display parts 15a-15c were pushed via the driver 861, The variable display windows 11A and 11B of the game display 10 and change of a display in 11C are suspended.

[0132]Thus, when change of a display in the variable display windows 11A and 11B and 11C is suspended, with the central processing unit 800, the [the 1st -] — stopping angle positions of the 1st - the 3rd rotating drum 511,521,531 calculating based on a detecting signal from the drum position detector 516,526,536 of three, and, It is judged whether it corresponds to which prize mode memorized in ROM810 from the result of an operation and the number memory of bets in RAM811.

[0133]As a result, when judged with not corresponding to a prize mode, awarded-balls discharge will not be performed as "separating", but the above-mentioned usual game operation by a game person will be repeated.

[0134]When judged with a prize mode having occurred as a game result, it opts for a control procedure of an awarded-balls ejecting number or a subsequent game according to the generated prize mode.

[0135]As a kind of prize mode, there are "great success (important duty thing)", "per inside (inside accessory)", "per smallness (small bonus thing)", in addition general "hitting", Since programs, such as an awarded-balls discharge program according to each of that prize mode and a control procedure of a game after generating, are memorized by ROM810 as fixed data, according to the fixed data, game control of awarded-balls discharge or after that is performed.

[0136]"Great success" gives a game person most profit states, and when combination (for example, "7, 7, 7" which are shown in drawing 16 should put together) of a display which generates "great success" gathers on the appointed display line (a-g) corresponding to the number of bets which a game person risked, it generates them. The number setpoint signal of rates from the number setting device 29a of rates is sent to the central processing unit 800, and the probability of occurrence of this "great success" is defined by memorizing the number of these rates in RAM811. When random number processing (data processing) is carried out and the probability of occurrence is reached with the central processing unit 800 based on the number of rates, becoming easy to generate "great success" from the time, if an operation decision signal for great success is sent to the output latch circuit 860 from the central processing unit 800 as shown in drawing 17 (A) — immediately — or "great success" will occur after a some times general game. At the time of this "great success", color of an applicable display line of the display lines (a-g) changes further via the output latch circuit 860 and the driver 861 based on a command signal from the central processing unit 800, and generating of "great success" is specified. A sound effect is emitted for a sound effect generating command signal from the loudspeaker 822 from the central processing unit 800. And while a score display is made by the score display part 13B by instructions from the central processing unit 800, the exhaust 446 operates and awarded-balls discharge of a predetermined number (for example, 90 pieces) is performed under discharge management by the discharge detector 445.

[0137]If this "great success" occurs, based on the fixed data in ROM810, the number of incorporation as the number of bets per time will be automatically set to "5", and the color of the auto display 18a will change. And based on the instructions from the central processing unit 800, the color of combination appointed display line b-b of the bet numeral part 12C and the middle changes, and it becomes effective [the combination of the display on combination appointed display line b-b of the middle]. When the combination (for example, "JAC, JAC, JAC" should put together) of a predetermined display on combination appointed display line b-b of the middle gathers for every game during this the "great success", While a score display is made by the score display part 13B by the instructions from the central processing unit 800, the prize balls of a predetermined number (for example, 90 pieces) come to be awarded. And at the time of generating of this "great success", since the important duty thing signal of H level is sent to the output latch circuit 860 as shown in drawing 17 (A), it becomes easy to produce the combination (for example, "JAC, JAC, JAC" should put together) of a display predetermined [that] from the central processing unit 800. As shown in drawing 17 (A) at such a bonus game, a prescribed frequency (for example, 66 times) challenge can be carried out. However, before completing the prescribed frequency, when the number of awarded-balls acquisition of the game person in the period of the "great success" (part which actually increased) reaches a predetermined number (for example, 4000 pieces), as shown in drawing 17 (A), an important duty thing signal serves as L level at the time, and it is returned to the usual game condition. When prize mode displays other than a predetermined display ("JAC, JAC, JAC") gather on combination appointed display line b-b of the middle at the time of the game of this "great success", a score display is made by the score display part 13B, and the prize balls of the number

according to that prize mode are awarded.

[0138] "Per inside" gives a game person many profit states to the second, and when combination (for example, "BAR, BAR, BAR", and "*", *, *" should put together) of a display which generates "per inside" is equal to the combination appointed display line (a-g) corresponding to the number of bets which a game person risked, it generates them. That probability of occurrence is controlled by random number processing (data processing) in inside of the central processing unit 800 based on the number of rates generating "per inside" was also remembered to be in RAM811, and from the central processing unit 800, as shown in drawing 17 (B), [this] It becomes easy to generate after an operation definite signal of ** is sent to the output latch circuit 860 per inside. When "per inside" occurs, based on a command signal from the central processing unit 800, color of an applicable display line (a-g) changes further via the output latch circuit 860 and the driver 861, and formation "per inside" is specified. [this] Simultaneously, a sound effect generating command signal is taken out from the central processing unit 800, and a sound effect is emitted from the loudspeaker 822. And while a score display is made by the score display part 13B by instructions from the central processing unit 800, the exhaust 446 operates and awarded-balls discharge of a predetermined number (for example, 90 pieces) is performed under discharge management by the discharge detector 445.

[0139] And based on fixed data in ROM810, the number of incorporation as the number of bets per time is automatically set to "5" after generating "per inside", [this] Based on instructions from the central processing unit 800, color of combination appointed display line b-b of the bet numeral part 12C and the middle changes, and it becomes effective [combination of a display on combination appointed display line b-b of the middle].

[0140] During a period "per inside", combination of a predetermined display at every game on combination appointed display line b-b of the middle. [this] When (for example, "JAC, JAC, JAC" should put together) gathers, a score display is made by score display part by instructions from the central processing unit 800, and prize balls of a predetermined number (for example, 90 pieces) come to be awarded. And at the time of generating "per inside", since an inside accessory signal of H level is sent to the output latch circuit 860 as shown in drawing 17 (B), it becomes easy to produce combination (for example, "JAC, JAC, JAC" should put together) of a display predetermined [that] from the central processing unit 800. [this] As shown in drawing 17 (B) at such a bonus game, a prescribed frequency (for example, 15 times) challenge can be carried out. However, before completing the prescribed frequency, when the number of awarded-balls acquisition of a game person in a period "per inside" (part which actually increased) reaches a predetermined number (for example, 1000 pieces). [the] As shown in drawing 17 (B), an inside accessory signal serves as L level at the time, a game condition "per inside" is ended, and it is returned to the usual game condition. [the] When prize mode displays other than a predetermined display ("JAC, JAC, JAC") gather on combination appointed display line b-b of the middle at the time of a game "per inside", prize balls of a number according to that prize mode are awarded. [this]

[0141] "Per smallness" are "great success" and a thing like [at the time of "per inside"] which is not profits continuously and gives the profits of the challenge to the above-mentioned bonus game of a limitation once at a game person, It generates, when the combination (for example, the display to which three lemon pictures are equal should put together) of the display which generates "per smallness" gathers on the combination appointed display line (a-g) corresponding to the number of bets which the game person risked. That probability of occurrence is controlled by random number processing in the inside of the central processing unit 800 based on the number of rates generating "per smallness" was also remembered to be in RAM811, and from the central processing unit 800, as shown in drawing 17 (C), [this] It becomes easy to generate after the operation definite signal for a small hit is sent to the output latch circuit 860. When "per smallness" occurs, based on the command signal from the central processing unit 800, the color of an applicable display (a-g) changes via the output latch circuit 860 and the driver 861, and formation "per smallness" is

specified. [this] Simultaneously, a sound effect generating command signal is taken out from the central processing unit 800, and a sound effect is emitted from the loudspeaker 822. And the exhaust 446 operates and awarded-balls discharge of a predetermined number is performed under the discharge management by the discharge detector 445. When "per smallness" occurs, if carried out at the time of the above "great success", it restricts to the same bonus game once, and it can be challenged. [this] If "per smallness" occurs, based on the fixed data of ROM810, will risk automatically, and the number of incorporation as a number will be set to "5", Based on the instructions from the central processing unit 800, the color of combination appointed display line b-b of the bet numeral part 12C and the middle changes, and it becomes effective [the combination of the display on combination appointed display line b-b of the middle].

[0142]As it restricts to 1 time of a game of the beginning after this generating "per smallness" and is shown in drawing 17 (C) from the central processing unit 800 in the output latch circuit 860, It is sent by small bonus thing signal of H level, and Combination of a predetermined display on combination appointed display line b-b of the middle. (For example, "JAC, JAC, JAC" should put together) is set-easy, and it is controlled, and when it gathers, while a score display is made by the score display part 13B, prize balls of a predetermined number (for example, 90 pieces) come to be awarded with the exhaust 446.

[0143]By generating "per smallness", after [that] restricting once, coming out and completing the 1 time, a small bonus thing signal from the central processing unit 800 serves as L level, and profits of a chance to a bonus game given to a game person are returned to the usual game.

[0144]Into the usual game, the above "great success" and when a general prize mode of an except occurs "per smallness" "per inside", while a score display is made by the score display part 13B, awarded-balls discharge according to the prize mode is performed each time, but profits in particular by the above bonus games are not given.

[0145]As mentioned above, when "great success", "per inside", and "per smallness" occur and awarded-balls discharge is performed by the exhaust 446, The reservoir storage number is displayed on the reservoir memory indication part 16 at the same time it adds the number of awarded balls to the reservoir storage number before it and memorizes in RAM811 as a new reservoir storage number, until the number memory of reservoirs in RAM811 reaches a predetermined number (for example, 750 pieces). And if the reservoir storage number of RAM811 reaches a predetermined number (for example, 750 pieces), The ball omission switching arrangement 447 operates by the instructions from the central processing unit 800, in drawing 14, as a chain line shows, the recovering spout 411 side is blockaded, and being calculated by the awarded-balls discharge detector 445, the awarded balls discharged after it flow down in the awarded-balls lead-out conduit 442, and collect into the saucer 20 via the ball exit 21. And if the prize balls in the saucer 20 become full and collect into the awarded balls emission chute 442, it will be detected by the overflow detector 448 and the overflow detecting signal will be inputted into the central processing unit 800. Awarded-balls discharge stops until an awarded-balls discharge red light is taken out from the central processing unit 800, the exhaust 446 is suspended based on the input of the detecting signal and the overflow is canceled.

[0146]According to advance of the above-mentioned game, a display command signal is taken out from the central processing unit 800 based on fixed data in ROM810, and it is displayed on the game informative label part (dot display part) 28 according to the signal via the output latch circuit 860 and the driver 861.

[0147]When an interrupt signal from the vibration switch 244 is inputted into the central processing unit 800, Misbranding is made by the game informative label part 28, while an unjust process signal is sent to the video display controller (VDG) 812 and the latch circuitry 860 from the central processing unit 800 and a game is played disabling.

[0148]If the auto switch display 18b is pushed after pushing a desired taking-in switch display part (27a-27e), when it is troublesome to push the taking-in switch display parts 27a-27e one by one, to

risk them into a game, and to carry out several sets, A set signal by those switch display part operations is sent to the central processing unit 800 as a switch one (SW ON) signal, While the number of bets is memorized in RAM811 by the instructions from the central processing unit 800 based on those signals, instructions from the central processing unit 800 are sent to the output latch circuit 860, and color of the auto display 16 changes via the driver 861. After it, unless a game person pushes the auto switch display 18b once again and resets an auto state, a game will advance with the set number of bets automatically. Setting operation of the number of bets is simplified by adoption of this automatic incorporation system, increase of game frequency within unit time is achieved, and troublesomeness to a game person's game is avoided.

[0149]If the settlement-of-accounts switch display part 17 is pushed when a game person wants to pay, the switch one (SW ON) signal will be inputted into the central processing unit 800, The ball of the number of reservoirs and the same number which a settlement-of-accounts command signal is taken out from the central processing unit 800 based on the input signal, and are memorized in RAM811 is returned into the saucer 20 via the ball exit 21 with the exhaust 446. Simultaneously, while the reservoir storage number of RAM811 is made into "zero", the display of the game display 10 is returned to an advertisement or a simulation display.

[0150]If the quantity of the reserve ball in a game and the upper tank 43 decreases, it will be detected by the dock sensor 431 and the detecting signal will be inputted into the central processing unit 800. Based on the input signal, a ball insufficient signal is sent to the central-control equipment besides a figure from the central processing unit 800. While a supply command signal is taken out from central-control equipment (outside of a figure) by the supply equipment 703 with a calculating machine based on the ball insufficient signal and the reserve ball in the replenishing gutter 700 is calculated by the supply equipment 703 with a calculating machine, it is filled in the upper tank 43.

[0151]An end of a predetermined value of calculation by the supply equipment 703 with a calculating machine will stop supply of the reserve ball to the upper tank 43 after that. As a result, if the reserve ball in the upper tank 43 decreases and it is detected by the completion detector 433, The detecting signal is sent to the central processing unit 800, graphic display of the character of completion is carried out to the completion display 13A by the central processing unit 800 based on the detecting signal, and the game after it is played into the state where it cannot do.

[0152]Then, if a reset pin (graphic display abbreviation) is inserted in the close reset pin inserting part 29b, A reset signal is sent to the central processing unit 800 from the reset detector 29b, a reserve ball is filled in the upper tank 43, being calculated by the calculating machine 703 by the instructions from the central processing unit 800, and the completion lamp of a graphic display abbreviation is switched off. If the key of the graphic display abbreviation to the number setting device 29a of rates is inserted in a prescribed depth and the key is turned in the predetermined direction while the reset pin kills and being inserted into the reset pin inserting part 29b, The signal from the number setting device 29a of rates is inputted into the central processing unit 800, the number of rates is memorized in RAM811, and it will be in the state in which a game is possible.

[0153]The block diagram of the power system allocated by the game device 1 is shown in drawing 18.

[0154]In the game device 1 in this embodiment, The electrical and electric equipment from the main power supply 900 of the exchange 24V is used for a lamp, the power supply 901 for solenoids, the power supply 902 for pulse motors, the power supply 903 for logical circuits, the power supply 904 for fluorescent lamps, etc., changing it, and electric supply is carried out from the power supply 904 for fluorescent lamps at the fluorescent lamp 47.

[0155]An example of the control management procedure of the main process of the game device 1 performed by the control system of drawing 15 is shown in drawing 19.

[0156]In Step R2, a start of a main process will perform initialization processing (initialization) first. As initialization, power-on processing, the check of a power failure flag, the probability-of-

occurrence setting processing of a hit, etc. occur. After power-on processing checks reading and writing of RAM811, it is performed by clearing RAM811. If the contents of the nonvolatile memory 813 are read after power-on processing and the power failure flag stands, the check of a power failure flag will transmit the contents of the nonvolatile memory 813 to RAM811, and will be performed by clearing the nonvolatile memory 813 after an appropriate time. By inserting the close reset pin of a graphic display abbreviation in the close reset pin inserting part 29b, the probability-of-occurrence setting processing of a hit, The reset switch as the reset detector 29b (drawing 15) is continuously made into an ON state, and it carries out by setting up the number of rates by inserting and turning the number set key of rates of a graphic display abbreviation (for example, six kinds and six steps of hit probability-of-occurrence setting out are possible) to the number setting device 29a (drawing 1) of rates. If the number setting out of rates is not completed, a game is in disabling.

[0157]After initialization in the above-mentioned step R2, it shifts to Step R4 and an input process is performed. It is the surveillance of each input of a switch one (SW ON) signal from the LCD panel control device 236C which shows drawing 9 an input process here, a switch one (SW ON) signal by the side of an X coordinate, and a switch one (SW ON) signal by the side of a Y coordinate.

[0158]After an input process in Step R4, it shifts to Step R6 and ball incorporation processing is performed. A detailed control management procedure of this ball incorporation processing is mentioned later.

[0159]After ball incorporation processing in Step R6, it shifts to Step R8 and drum processing, i.e., rotation and stop processing of the drum 511,521,531, is performed.

[0160]It shifts to Step R10 after drum processing in Step R8, and game condition decision processing is performed and it shifts to a judgment of Steps R12-R18.

[0161]When it is judged in Step R12 whether it is among the usual game and it is judged with it being among the usual game, game decision processing is usually made at Step R20, and it shifts to Step R28 as it is, and when judged with it not being among the usual game, it shifts to Step R14.

[0162]In Step R14, it is judged whether it is among "an important duty thing, i.e., a game of "great success",", When judged with it being among a game of an "important duty thing", important duty thing decision processing is made at Step R22, and it shifts to Step R28 as it is, and when judged with it not being among a game of an "important duty thing", it shifts to Step R16.

[0163]In Step R16, it is judged whether it is among "an inside accessory, i.e., a game "per inside",", When judged with it being among a game of an "inside accessory", inside accessory decision processing is made at Step R24, and it shifts to Step R28 as it is, and when judged with it not being among a game of an "inside accessory", it shifts to Step R18.

[0164]In Step R18, it is judged whether it is among "a small bonus thing, i.e., a game "per smallness",", When judged with it being among a game of a "small bonus thing", after small bonus thing decision processing is made at Step R26, it shifts to Step R28, and when judged with it not being among a game of a "small bonus thing", it shifts to Step R28 as it is.

[0165]If it shifted to Step R28 through the above-mentioned step R, after unjust processing ** described in detail in this step R28 later will be made, it shifts to Step R30.

[0166]In Step R30, processing by which an output process to an external terminal, i.e., an injection signal of the number of bets, an expenditure signal of awarded balls, an accessory generated signal (size, inside, smallness), a drum stop signal, a driving signal of a drum, etc. are outputted to an external terminal is performed.

[0167]After an external terminal output process is performed in Step R30, it shifts to Step R32 and an output process is performed.

[0168]After an appropriate time, he shifts to Step R34 and probability data processing, i.e., data processing of probability to the number of rates, should do. It returns to Step R4 again, and processing not more than step R4 is repeated.

[0169]While the above-mentioned main process is performed, interrupt processing of the four steps

R501–R506 is made suitably.

[0170]Countermeasures against power failure are carried out as the 1st interrupt-processing step R501. These countermeasures against power failure are processing which moves data memorized in RAM811, such as the number of reservoirs, and the number of incorporation, to the nonvolatile memory 813, changes it, and memorizes it, when interruption to service occurs, and they are described in detail later.

[0171]A detector monitoring process is carried out as Step R502 of the 2nd interrupt processing. This detector monitoring process is described in detail later.

[0172]Time processing is carried out as Step R503 of the 3rd interrupt processing. This time processing is processing which resets a flag to every fixed time (interruption), and makes a time basis in a main process.

[0173]The 4th drum rotation monitoring process is processing which judges whether the rotating drum 511,521,531 became steady rotation.

[0174]The 5th switch interrupt processing is control management which judges whether which switch display part of the game display 10 was pushed, and performs processing corresponding to the pushed switch display part.

[0175]6th unjust processing ** is control management which performs processing corresponding to it, when a detecting signal from the vibration switch 244 is inputted into the central processing unit 800.

[0176]An example of a control procedure of a detector monitoring process performed as interrupt processing during a main process of drawing 19 is shown in drawing 20 – drawing 22.

[0177]It is judged whether if a detector monitoring process is started, in Step R100, it risks first, a number is set, it incorporates, and the ending flag has become "1", When judged with the incorporation ending flag being "1", it shifts to Step R144 of drawing 21, and when judged with it not being "1", it shifts to Step R102.

[0178]It is judged whether the playing-ball ON flag is "1" by pushing the playing-ball ON switch display part 23 in Step R102, When judged with it being "1", it shifts to Step R108 as it is, and when judged with it not being "1", it shifts to Step R104.

[0179]When it shifts to Step R124 as it is when the one [the playing-ball ON switch display part 23] in Step R104 is judged and it judges one [*****], and it judges one [*****], it shifts to Step R106.

[0180]When it shifts to Step R106, after a playing-ball ON flag is set to "1" in this step R106, it shifts to Step R108, While the playing-ball entrance closing mechanism (opening-and-closing SOL) 20C operates and the playing-ball entrance 20b is opened, a closing mechanism flag (opening-and-closing solenoid flag) is set to "1", and shifts to Step R110 after an appropriate time.

[0181]If it is judged and is judged with having become one, it will shift to Step R112, and if it judges that it is not one whether the number detector 20f of reservoirs became one in Step R110, it will shift to Step R116.

[0182]When it shifts to Step R112 from Step R110, while a count by the number detector 20f of reservoirs is performed in this step R112, the count number is transmitted to magnetic-counter @. and the count number — below "750" — a multiple (5n) of "5" — when there is an odd ball which does not come out, the odd pitch count "a" is displayed on the odd ball display 24. A magnetic counter is for a measure against interruption to service, and counted value by the number detector 20f of reservoirs is transmitted to magnetic-counter @. And it shifts to Step R114 after that.

[0183]On the other hand, when it shifts to Step R116 from the above-mentioned step R110, it is judged whether in this step R116, a closing mechanism flag (opening-and-closing solenoid flag) is "1." As a result, when judged with a closing mechanism flag (opening-and-closing solenoid flag) being "1", it shifts to Step R118, and when judged with it not being "1", it shifts to Step R124.

[0184]When it shifts to Step R114 from the above-mentioned step R112, It is judged whether it amounted to "750" of the highest number which can store the count number by the number

detector 20f of reservoirs in this step R114, When judged with not amounting to "750", it shifts to Step R124 as it is, and when judged with having amounted to "750", it shifts to Step R118.

[0185]When it shifts to Step R114 or Step R118 from R116, while the playing-ball entrance closing mechanism (opening-and-closing SOL) 20c is suspended in this step R118 and the playing-ball entrance 20b is closed, a closing mechanism flag (opening-and-closing solenoid flag) is set to "0." And after it incorporates while being put into the pitch count "b" counted with the number detector 20f of reservoirs above "a" after the playing-ball entrance closing mechanism (opening-and-closing SOL) 20c is suspended, and an ending flag is set to "1", it shifts to Step R120.

[0186]It is judged in Step R120 whether "b" is size from "0", When judged with it not being size from "0", it shifts to Step R124 as it is, and when judged with it being size from "0", while an awarded-balls exaggerated flag is made by "1" at Step R122, after counting b pieces to magnetic-counter c, it shifts to Step R124.

[0187]It is judged whether the dock sensor 431 which detects that reserve balls in the upper tank 43 (drawing 2) decreased in number to below the specified quantity in Step R124 became one, When judged with it not being one, it shifts to Step R128 as it is, and when judged with having become one, after "1000" individual supply of the ball is carried out at Step R126 at the upper tank 43, it shifts to Step R128.

[0188]It is judged whether in Step R128, the discharge detector 445 became one. As a result, when judged with the discharge detector 445 not having become one, while a ball clogging flag is set to "1" at Step R136, an off-flag (OFF-FG) is set to "0", and carries out a return to a main process of drawing 19. It makes it identify whether discharging operation is possible for an off-flag, when discharging operation is possible, an off-flag is set to "1", and by ball clogging, when discharging operation is impossible, an off-flag is set to "0." On the other hand, when judged with the discharge detector 445 having become one at Step R128, while an off-flag is set to "1", a ball clogging flag is set to "0" and shifts to Step R132 after an appropriate time.

[0189]When judged with it being judged whether the awarded-balls flag is "1" in Step R132, and having become "1", it shifts to Step R134, and when judged with it not being "1", it shifts to Step R138.

[0190]As a result, when it shifts to Step R134. In this step R134, the number of awarded balls is added to the reservoir storage number in RAM811, and the added new reservoir storage number is transmitted in RAM811, What deducted "750" which is the highest number which can be stored from the new reservoir storage number is set to "b", and shifts to Step R142 after an appropriate time.

[0191]When it shifts to Step R138 from Step R132, It is judged whether in this step R, the awarded-balls exaggerated flag is "1", When judged with it not being "1", it results in the end of return processing at the time, and when judged with it being "1", after an awarded-balls exaggerated flag is set to "0" at Step R140, it shifts to Step R142.

[0192]It is judged whether "b" set up at the above-mentioned step R118 or Step R134 in Step R142 is positive, When judged with it not being positive, it results in the end of return processing at the time, and when judged with it being positive, it shifts to Step R164 of drawing 22 that the awarded balls to have exceeded should be discharged in the saucer 20.

[0193]When it shifts to Step R144 of drawing 21 from Step R100 of drawing 20, it is judged whether the discharging operation of whether in this step R144, the off-flag (OFF-FG) is "1" and awarded balls is possible. as a result, the off-flag (OFF-FG) not being "1", i.e. When it judges that the discharging operation of awarded balls is impossible, it shifts to Step R156 as it is, the off-flag (OFF-FG) is "1", namely, when judged with the discharging operation of awarded balls being possible, it shifts to Step R146.

[0194]When judged with it being judged whether the settlement-of-accounts flag is "1" in Step R146, and having become "1", it shifts to Step R150 as it is, and when judged with it not being "1", it shifts to Step R148.

[0195]When it shifts to Step R156 as it is when the one [the settlement-of-accounts switch display part 17] in Step R148 is judged and it judges one [*****], and it judges one [*****], it shifts to Step R150.

[0196]As a result, when it shifts to Step R150, a settlement-of-accounts flag is set to "1" in this step R150, the ball omission switching arrangement (ball omission change solenoid) 447 is made one, and the recovering spout 441 (drawing 7) is blockaded. And while the playing-ball entrance closing mechanism 20c is turned off and the playing-ball entrance 20b is blockaded, after the auto flag (AUTO-FG) of the auto switch display 18b is set to "0", are one [the exhaust 446], and a discharge flag is set to "1" and shifts to Step R152 after an appropriate time.

[0197]In Step R152, when judged with it being judged whether the count number by the discharge detector 445 is the reservoir storage number and the same number in RAM811, and not being the same number, it shifts to Step R156 as it is, and when judged with it being the same number, it shifts to Step R154.

[0198]When it shifts to Step R154, the exhaust (discharge SOL) 446 is suspended in this step R154 (OFF), and a discharge flag and a settlement-of-accounts flag are set to "0." And after the ball omission switching arrangement (ball omission equipment SOL) 447 is turned off and the awarded balls emission chute 422 side is blockaded, it shifts to Step R156.

[0199]When judged with it being judged whether the auto switch display 18b serves as one in Step R156, and not serving as one, it shifts to Step R124 of drawing 20, and when judged with it being one, it shifts to Step R158.

[0200]It is judged whether in Step R158, the auto flag (AUTO-FG) is "1." As a result, when judged with it not being "1." After an auto flag (AUTO-FG) is set to "1" at Step R162, it shifts to Step R124 of drawing 20, and when judged with it being "1", after an auto flag (AUTO-FG) is set to "0" at Step R160, it shifts to Step R124 of drawing 20. When it shifts to Step R124, the control procedure not more than step R124 is performed.

[0201]When it shifts to Step R164 of drawing 22 from Step R142 of drawing 20, the exhaust (discharge SOL) 446 operates in this step R164 (ON), and an exhaust flag (discharge SOL flag) is set to "1." When the ball omission switching arrangement (ball omission change SOL) 447 operates, the recovering spout 441 side is blockaded and a ball comes to be discharged in the saucer 20 via the awarded-balls lead-out conduit 442.

[0202]And shift to the following step R166 and it is judged whether in this step R166, the discharge count number by the discharge detector 445 became equal to "b", When judged with having become equal, it shifts to Step R168, and when judged with it not being equal, it shifts to Step R170.

[0203]As a result, when it shifts to Step R168, while the exhaust (discharge SOL) 446 is suspended in this step R168 (OFF), an exhaust flag (discharge SOL flag) and an awarded-balls flag are set to "0." The ball omission switching arrangement (ball omission change SOL) 447 is suspended (OFF), the reservoir storage number in RAM811 is set to "750", after an appropriate time, it shifts at the place which is 2F of drawing 20, and a return is carried out to the main process of drawing 19.

[0204]On the other hand, when it shifts to Step R170 from the above-mentioned step R166, it is judged whether this step R170 smell overflow detector 448 serves as one. As a result, when judged with it not being one, shift as it is at the place of 2F of drawing 20, and it results in the end of return processing, When judged with it being one, while shifting to Step R172 and suspending the exhaust (discharge SOL) 446 (OFF), an exhaust flag (discharge SOL flag) is set to "0", And after the display of the reservoir numeral part 16 blinks, it shifts at the place which is 2F of drawing 20, and results in the end of return processing.

[0205]An example of a control procedure of ball incorporation processing under main process of drawing 19 is shown in drawing 23.

[0206]If ball incorporation processing is started, in Step R200, it will be judged first whether an auto flag (AUTO-FG) is "1", When judged with it being "1", it shifts to Step R202, and when judged with it not being "1", it shifts to Step R208.

[0207]As a result, it is judged whether when it shifts to Step R202, in this step R202, a through flag (THO-FG) is "1", When judged with it being "1", it shifts to Step R212 as it is, and when judged with it not being "1", it shifts to Step R204.

[0208]If it is judged whether either serves as the one (ON) in Step R204 among the taking-in switch display parts 27a-27e, and it does not serve as one, and it shifts to Step R218 as it is and has become one, it will shift to Step R206.

[0209]As a result, when it shifts to Step R206. In this step R206, while the number of incorporation of the taking-in switch display part [one / a part] (27a or-the 27e (either)) is memorized by number memory of incorporation ** in RAM811, The game flag (GAME-FG) which plays a through flag (THO-FG) and a game possible is set to "1", and shifts to Step R212 after an appropriate time.

[0210]And after that from which it incorporated from the number memory of reservoirs in RAM811 at Step R212, and number memory ** was deducted is set to "d", it shifts to Step R214.

[0211]It is judged whether "d" computed at said step R212 in Step R214 is negative, When judged with it being negative, the game flag 0 and the game flag 1 are set to "0" at Step R220, and it is made game disabling, it shifts to drum processing as it is, and when judged with it not being negative, it shifts to Step R216.

[0212]Incorporate, while "d" computed at said step R212 in this step R216 is transmitted to the number memory of reservoirs in RAM811, when it shifts to Step R216, and number memory ** is transmitted to magnetic-counter b, And the game flag 0 (GAME-FG0) is set to "1", and shifts to Step R218 after an appropriate time.

[0213]It is judged whether the number of reservoirs memorized in RAM811 in Step R218 is below "100", After shifting to drum processing as it is when judged with it not being below "100", incorporating at Step R222, setting an ending flag to "0", when judged with it being below "100", and setting a playing-ball ON button flag to "1", it shifts to drum processing.

[0214]An example of the control procedure of the unjust processing under main process of drawing 19 is shown in drawing 24.

[0215]If unjust processing ** is started, when it is first judged with it being judged whether a closing mechanism flag (opening-and-closing SOL flag) is "1", and being "1" at Step R300, it shifts to Step R304 as it is, and when judged with it not being "1", it will shift to Step R302.

[0216]It is judged whether in Step R302, there is any movement of a ball in the number detector 20f of reservoirs, When judged with there being movement of a ball, inaccurate flag ** is set to "1" at Step R308, and it shifts to an external terminal output process of a main process of drawing 19 as it is, and when judged with there being no movement of a ball, it shifts to Step R304.

[0217]When it is judged in Step R304 whether an exhaust flag (discharge SOL flag) is "1" and it is judged with it being "1", it shifts to an external terminal output process as it is, and when judged with it not being "1", it shifts to Step R306.

[0218]It is judged whether in Step R306, there is any movement of the ball in the discharge detector 445, When judged with there being no movement of a ball, it shifts to an external terminal output process as it is, and when judged with there being movement of a ball, after inaccurate flag ** is set to "1" at Step R308, it shifts to the external terminal output process of the main process of drawing 19.

[0219]It returns, when inaccurate flag ** is set to "1" in the above-mentioned step R308 and injustice is removed.

[0220]The control management procedure of unjust processing ** performed as interrupt processing during the main process of drawing 19 is shown in drawing 25.

[0221]If unjust processing ** is started, it will be judged first whether the vibration switch 244 became the one (ON) at Step R350, When judged with having become one, inaccurate flag ** is set to "1" at Step R352, After misbranding is furthermore made at the following step R354 to the game display 10, it shifts to the external terminal output process of the main process of drawing 19, and when judged with it not being one, it shifts to the external terminal output process of the main

process of drawing 19 as it is. It returns, when inaccurate flag ** is set to "1" and injustice is removed.

[0222]The control management procedure of switch interrupt processing performed as interrupt processing during the main process of drawing 19 is shown in drawing 26 and drawing 27.

[0223]In the figure, a start of switch interrupt processing will set up a reference switch table from the present display pattern of the game display 10 in Step R400 first.

[0224]Here, when a display pattern is explained here, the display pattern 1 in a game and the display pattern 2 before a game start are shown. The display pattern 1 of these has the various switch display parts which are displays when the display of the game display 10 is possible in the state in the game, and are displayed on the game display 10 in the state of working effectively as a switch. At this time, the state of a switch table (matrix switch board 236B) shows in the explanatory view (only a view is shown) of drawing 28. That is, the part corresponding to the position of each switch display part serves as a data part of "01" – "09" and "0A" – "0C" of the portion specified by the X coordinate and Y coordinate of the matrix switch board 236B. And the part of the matrix switch board 236B specified with those marks works effectively as a switch, and other parts (it is "0, 0" data) are effectively committed as a switch. On the other hand before the game start in the display pattern 2, the display of the game display 10 is an advertising display, a simulation display, etc., A game is impossible and it is still in the state where various switch display parts do not work effectively as a switch except for the injection switch display part 23 currently displayed on the game display 10. At this time, the state of a switch table (matrix switch board 236B) shows in the explanatory view (only a view is shown) of drawing 29. That is, except for the injection switch display part 23 specified by the X coordinate and Y coordinate of the matrix switch board 236B, and a corresponding portion (it does not appear in Drawings), portions are [no] "0 or 0" data, and the part of a gap may also have comes to function as a switch.

[0225]In the above-mentioned step R400, it is judged whether the present display pattern is which display pattern, and a switch table is set up according to it.

[0226]And X of an ON switch (ONSW) and read in of SW data corresponding to a Y coordinate are performed at the following step R402. Based on the result of the read in, each judgment of Steps R404–R426 is performed by the central processing unit 800.

[0227]As a result, when judged with it being "switch (SW) data =1" in Step R404, after the flag of a taking-in switch (SW5) is set as "1" at Step R428, a return is carried out to the main process of drawing 19.

[0228]When judged with it being "switch (SW) data =2" in Step R406, after the flag of a taking-in switch (SW10) is set as "1" at Step R430, a return is carried out to the main process of drawing 19.

[0229]When judged with it being "switch (SW) data =3" in Step R408, after the flag of a taking-in switch (SW15) is set as "1" at Step R432, a return is carried out to the main process of drawing 19.

[0230]When judged with it being "switch (SW) data =4" in Step R410, after the flag of a taking-in switch (SW20) is set as "1" at Step R434, a return is carried out to the main process of drawing 19.

[0231]When judged with it being "switch (SW) data =5" in Step R412, after the flag of a taking-in switch (SW25) is set as "1" at Step R436, a return is carried out to the main process of drawing 19.

[0232]When judged with it being "switch (SW) data =6" in Step R414, after the flag of a playing-ball ON switch (SW) is set as "1" at Step R438, a return is carried out to the main process of drawing 19.

[0233]When judged with it being "switch (SW) data =7" in Step R416, after the flag of a start switch (SW) is set as "1" at Step R440, a return is carried out to the main process of drawing 19.

[0234]When judged with it being "switch (SW) data =8" in Step R418, after the flag of a stop switch

(SW1) is set as "1" at Step R440, a return is carried out to the main process of drawing 19.

[0235]When judged with it being "switch (SW) data =9" in Step R420, after the flag of a stop switch (SW2) is set as "1" at Step R444, a return is carried out to the main process of drawing 19.

[0236]When judged with "switch (SW) data being "A" in Step R422 (drawing 23 (B)), after the flag of a stop switch (SW3) is set as "1" at Step R446, a return is carried out to the main process of drawing 19.

[0237]When judged with "switch (SW) data being "B" in Step R424, after the flag of an auto switch (SW) is set as "1", a return is carried out to the main process of drawing 19.

[0238]When judged with "switch (SW) data being "C" in Step R426, after the flag of a settlement-of-accounts switch (SW) is set as "1", a return is carried out to the main process of drawing 19.

[0239]The control procedure of the countermeasures against power failure performed as interrupt processing during the main process of drawing 19 is explained to drawing 30.

[0240]If countermeasures against power failure are started, memory of the number memory of reservoirs in RAM811, the variable b, the number of rates, and a power failure flag will be transmitted to nonvolatile memory at Step R501, and a return will be carried out to a main process after an appropriate time.

[0241]Since the state before interruption to service is reproduced when the data in RAM811 is memorized by nonvolatile memory at the time of interruption to service and a power supply is again switched on by these countermeasures against power failure, disappearance of the memory by interruption to service is avoided.

[0242]Inconvenience is not produced even if it is, when it seems that he would like to stop a game before prolonging interruption to service and avoiding interruption to service, since a game person's pitch count can be known from each value of above-mentioned magnetic-counter a, b, and c.

[0243]In this embodiment, two steps of backup methods, nonvolatile memory and a magnetic counter, are adopted as a measure to interruption to service.

[0244]Since the LCD (RIKITTO crystal display) panel 235 in which the matrix switch board 236B was built in is used as the game display 10 according to the game device 1 concerning this embodiment, Various required switches can be arranged to the game display 10 on a game, and reduction of part mark can be aimed at compared with the case where a switch is formed separately. The flexibility of arrangement of a switch increases.

[0245]A game display is made to the dot-matrix plotting board 236A of LCD panel 235, and also various displays if needed can be performed and game nature and interest are increased — an advertising display and a simulation display can be performed before a game.

[0246]Since LCD panel 235 is transparent, even if it does not provide an opening window in particular, the contents of a variable display of the rotating drum device 50 installed in the back side of LCD panel 235 may let transparent LCD panel 235 pass, and are in sight.

[0247]When power strongly pushed to LCD panel 235 is added, while this panel 235 retreats, being detected by the vibration switch 244 for unjust detection, and misbranding's being made by the game display 28 and made game disabling, Since the detecting signal reaches a control center, when LCD panel 235 is struck by game person or it is pushed strongly, injustice will be detected promptly, and an important occurrence which LCD panel 235 damages can be prevented.

[0248]After a game person puts a ball into the saucer 20, when the playing-ball ON switch display part 23 is pushed, a predetermined number. While incorporation of a ball is performed by making (for example, 750 pieces) into a maximum and the incorporated pitch count is memorized as the number of reservoirs by the number memory of reservoirs of the control device 800, Since a game can be continuously performed as long as the visible display of the number of reservoirs is carried out to the reservoir numeral part 16 and the number memory of reservoirs has memory, operation on a game person's game becomes easy.

[0249]And since the pitch count beyond the predetermined number of a part is given to a game person with a real ball and reservoir memory is always carried out within the limit of the

predetermined number if it is when a prize mode occurs continuously with advance of a game and the number memory of reservoirs exceeds a predetermined number (for example, 750 pieces), the following effects are done so.

[0250]Namely, since it risks on condition that there is number memory of reservoirs, and a number (the number of incorporation) is automatically subtracted and added to a reservoir storage number, it risks and incorporation operation of a number is ended especially when based on the automatic incorporation system of the number of bets, The real ball of a saucer is incorporated compared with the conventional thing incorporated each time, and ** of a game person until the time to an end is shortened remarkably and shifts to a game is reduced remarkably.

[0251]As an effect of an incorporation system with the number restrictions of reservoirs, when the number restrictions of reservoirs are exceeded, there is the real thrill that the real ball of a part which exceeded pays out a game person as a prize. Since it only pays out by the number memory restrictions of reservoirs of ***** (for example, 750 pieces) when the number of game balls which the settlement-of-accounts switch display part 17 was operated, and the game person gained pays out, compared with the case where there are no number memory restrictions of reservoirs, the expenditure time at the time of settlement of accounts is reduced. Especially when unrestricted, when there are many reservoir storage numbers, there is inconvenience that the time required of the settlement of accounts starts for a long time, like settlement of accounts when it becomes the close.

[0252]According to this embodiment, there are a manual incorporation system and an automatic incorporation system as an incorporation system of the number of bets. It is a system with which a game person sets the pitch count bet on a game for 1 time of every game, and the manual incorporation system is effective in it to change the number of bets here frequently. On the other hand, if the pitch count (setting out of the incorporation button switch display parts 27a-27e) once bet on a game is set, an automatic incorporation system, change of the setting out by a game person should do — as long as there is nothing, for every one end of a game, promptly, the set pitch count is incorporated automatically and the continuation game of the same number of bets of it is played possible.

[0253]Therefore, the game person can use the manual incorporation system and automatic incorporation system properly if needed. And if it sets to an automatic incorporation system to perform a game continuously with the same number of bets especially, while part operation in which the number setting out of bets is performed automatically is simplified and being able to aim at increase of the game frequency within unit time, ** of several sets bet operation to a game person will be avoided.

[0254]If it is when a reservoir storage number decreases from constant value (for example, 100 pieces), it operates so that the ball in the saucer 20 may be incorporated again.

[0255]Thus, if it is in this game device, it operates so that it can maintain at state that a reservoir storage number is always required and sufficient.

[0256][A 2nd embodiment of invention] Although it supposes that the injustice at the time of a game display being struck by the game person or being pushed strongly is detected electrically, and is processed in a 1st embodiment of the above-mentioned invention, it is supposed in this embodiment that it detects mechanically and processes.

[0257]Since the composition of the game device in this embodiment has the 1st the same game device and composition of an embodiment of the above-mentioned invention except for the portion which detects that injustice mechanically and processes it, duplication explanation is given to avoid if possible and explain that different component part.

[0258]On the explanation, when the same component part as a 1st embodiment of invention comes out, the same Drawings and a mark are quoted with having used by a 1st embodiment of invention.

[0259]An exploded perspective view shows the fixing structure of LCD panel 235 to front case 2B of the game device in this embodiment to drawing 31.

[0260]In the back side upper position of the opening 210, as shown in the figure, it rolls round, and the shutter device 201 of the formula is installed. The paper winding shaft 201b which was stored as for this shutter device 201 enabling free rotation in the case 201a and this case 201a, The shutter 202 attached to this paper winding shaft 201b so that rolling up was possible, It comprises a spring for a return (graphic display abbreviation) which gives the torque to the direction which unfolds the shutter 202, and the string 201c for rolling up of the shutter 202 wound around said paper winding shaft 201b to said paper winding shaft 201b.

[0261]The guidance component 206,206 of a cross section U shape to which it shows the shutter 202 of said shutter device 201 is installed in the right-and-left back side of the opening 210 in the state where it countered mutually.

[0262]While the up-and-down couple [every] rack gear 208 is installed in the state where it countered mutually, the spring hook 203 is installed in a back side right-and-left position of the opening 210. The LCD panel stopper 205 is installed in one opening 210 back side side.

[0263]The rubber packing 230 attached to the packing fitting part 211 (drawing 32) on the opening 210 back side of front case 2B is formed in rectangular shape from which the inside became an opening as shown in drawing 26, The fitting groove 231 which can carry out outer fitting to the packing fitting part 211 as shown in drawing 32 is continued and established in the whole circumference at the front side.

[0264]LCD panel 235 — said rubber packing 230 — abbreviated — it is made in a rectangle of the same size and the tapped hole 238 is established in a four-corners position on the back side, respectively.

[0265]As for the oscillating perception frame 240, a gear group for migration length adjustment is installed in the outside of the frame board 241,241 on either side and these frame boards 241,241, respectively.

[0266]The pinion gear 242,242 with which these gear groups always gear, respectively on said rack 208 attached to the back side of front case 2B, While these pinion gears 242,242 do and gearing with the pinion gear 242,242, respectively, it comprises the transfer gear 243,243 of a couple which meshes each other mutually. And the pinion gear 242 on either side is being fixed to both sides of the axis of rotation 244 constructed across horizontally between the frame boards 241,241 of said right and left, respectively, and transfer of torque is made between [of these right and left] pinion gear 242,242.

[0267]The bracket 241a for attachment is formed in a vertical position by the side of front [of the frame board 241,241 on either side], each bracket 241a is made to correspond with a position of the tapped hole 238 of LCD panel 235, and the bolt insertion hole 241b is formed.

[0268]The move regulating piece 247 which can contact said LCD panel stopper 205 formed in frame-front-cover 2B is formed in the front end part outside of one frame board 241.

[0269]And the rubber packing 230 is first attached to the packing fitting part 211 on the back side of the opening 210 of front case 2B. When it ****s with the bolt insert hole 241b, and the hole 238 is put together, and it lets the bolt 246 pass and is screwed by said tapped hole 238 all over said bolt insert hole 241b after an appropriate time, LCD panel 235 and the oscillating perception frame 240 are unified. Then, after changing into the state where the shutter 202 was able to wind up, as [show / to drawing 27 / by pulling the shutter rolling-up string 201c], It is arranged at the state where it changed into the state where said four pinion gears 242 were clenched by said four rack gears 202, respectively, and the move regulating piece 247 of the oscillating perception frame 240 contacted the LCD panel stopper 205 on the opening 210 back side. Then, the spring 207 for a return is stretched between the spring hook 203 on the front case 2B back side, and the spring mounting hole 241c established in the frame board 241,241 of the oscillating perception frame 240.

[0270]Thus, if it is in the state where LCD panel 235 was installed in the opening 210 back side of front case 2B, The oscillating perception frame 240 and LCD panel 235 are maintained by the state where are in the state where moved forward with the tension of the spring 207 for a return, and the

back of the rubber packing 230 was contacted, and the free end (tip) of the shutter 202 is rolled round in contact with the upper bed of LCD panel 235.

[0271]If LCD panel 235 is struck strongly or it is pushed by the game person in this state, LCD panel 235 will retreat together with the oscillating perception frame 240. If the retreat distance becomes beyond prescribed distance, it will be in the state where the tip of the shutter 202 separated from the upper bed of LCD panel 235, and descended along the guide rail of the guide rail 206, and the opening 210 was blockaded.

[0272]thus, injustice, such as LCD panel 235 being struck strongly or being pushed, — ***** — coming — when the opening 210 is blockaded by the shutter 202, it will be in the state in which a game is impossible.

[0273]Thus, when it changes into the state where the shutter 202 was closed, after opening frame-front-cover 2B, if the string 201c for shutter rolling up is pulled, the shutter 202 can wind up and the advance return of LCD panel 235 and the oscillating perception frame 240 will be carried out by the spring 207 for a return. By it, it will be in the state in which a game is possible again.

[0274]Even if it is a case where which portion of LCD panel 235 was struck by the game person, or it is pushed, While retreating uniformly, without LCD panel 235 and the oscillating perception frame 240 inclining selectively by work of said gear group (242,243) for migration length adjustment, it returns uniformly also at the time of a return.

[0275]the time of according to the game device 1 in this embodiment, especially LCD panel 235 being struck strongly, or being pushed — the above — by mechanical composition, LCD panel 235 retreats, and the opening 210 is closed by the shutter 202 and will be in the state in which a game is impossible. A maintenance is easy because of mechanical composition. Since it retreats uniformly, without LCD panel 235 and the oscillating perception frame 240 inclining selectively by work of the gear group (242,243) for migration length adjustment when which portion of LCD panel 235 is struck or it is pushed, modification of LCD panel 235 can be prevented.

[0276]The effect by other composition is the same as the effect by a 1st embodiment of invention. The kind and number of the combination appointed display lines which are validated as a game result corresponding to the number of bets may not be limited to the above-mentioned embodiment, and may be what kind of kind and number. Although it faces performing a game and the game is performed by throwing in a game ball as a game medium in the above-mentioned embodiment, as long as it is not limited to the game ball of the above-mentioned embodiment as a game medium, it throws in a game medium and it performs a game, it may be what kind of game medium.

[Translation done.]

* NOTICES *

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1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.**** shows the word which can not be translated.

3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is the whole game device perspective view concerning a 1st embodiment of this invention.

[Drawing 2]It is a partial vertical section side view showing the state where this game device was installed in the island facility of an amusement center.

[Drawing 3]It is a back side portion perspective view showing the fixing structure of the LCD panel to a front case.

[Drawing 4]It is a vertical section side view showing the fixing structure of the LCD panel of a front case.

[Drawing 5]It is a vertical section side view showing the fixing structure of the LCD panel of a front case.

[Drawing 6]It is a partial decomposition perspective view showing the fixing structure of the LCD panel of a front case.

[Drawing 7]It is a perspective view showing the fixing structure of an LCD panel.

[Drawing 8]It is a perspective view showing the graphic display arrangement to the main part of an LCD panel.

[Drawing 9]It is a perspective view showing the structure of the main part of an LCD panel.

[Drawing 10]It is an exploded perspective view showing the state where a rotating drum device, a control device, a terminal box, an electric power unit, etc. were picked out from the case body which constitutes a game device.

[Drawing 11]It is an exploded perspective view of a rotating drum device.

[Drawing 12]It is an inner part perspective view of the housing (right-hand side) which supports a rotating drum.

[Drawing 13]It is a partial flat section showing the state where the housing which supports a rotating drum was attached to the drum housing.

[Drawing 14]It is an explanatory view of the back mechanism of a game device.

[Drawing 15]It is a control system figure of a control device.

[Drawing 16]It is an explanatory view which illustrates the display which generates great success.

[Drawing 17]As for the timing chart of the game of "great success", and (B), the timing chart of the game "per inside" and (C) of (A) are the timing charts of each game "per smallness."

[Drawing 18]It is a block diagram of the power system allocated by the game device.

[Drawing 19]It is a flow chart which shows the control procedure of the main process of a game device performed by the control system of drawing 15.

[Drawing 20]It is a part of flow chart which shows the control procedure of a detector monitoring process.

[Drawing 21]It is a part of flow chart which shows the control procedure of a detector monitoring process.

[Drawing 22] It is a part of flow chart which shows the control procedure of a detector monitoring process.

[Drawing 23] It is a flow chart which shows the control procedure of ball incorporation processing.

[Drawing 24] It is a flow chart which shows the control procedure of unjust processing **.

[Drawing 25] It is a flow chart which shows the control procedure of unjust processing.

[Drawing 26] It is a flow chart which shows the control procedure of switch interrupt processing.

[Drawing 27] It is a flow chart which shows the control procedure of switch interrupt processing.

[Drawing 28] It is an explanatory view showing the display pattern 1 the inside of the game of a matrix switch board, and in front of a game.

[Drawing 29] It is an explanatory view showing the display pattern the inside of the game of a matrix switch board, and in front of a game.

[Drawing 30] It is a flow chart which shows the control procedure of countermeasures against power failure.

[Drawing 31] It is the back side exploded perspective view showing the fixing structure of the LCD panel to the front case concerning a 2nd embodiment of this invention.

[Drawing 32] It is a decomposition vertical section side view showing the fixing structure of the LCD panel to a front case.

[Explanations of letters or numerals]

1 Game device

11A, 11B, and 11C Variable display window (display window)

236 The main part of an LCD panel (liquid crystal display panel)

511,521,531 rotating drums (drum)

a-g combination appointed display line (prize line)

[Translation done.]

* NOTICES *

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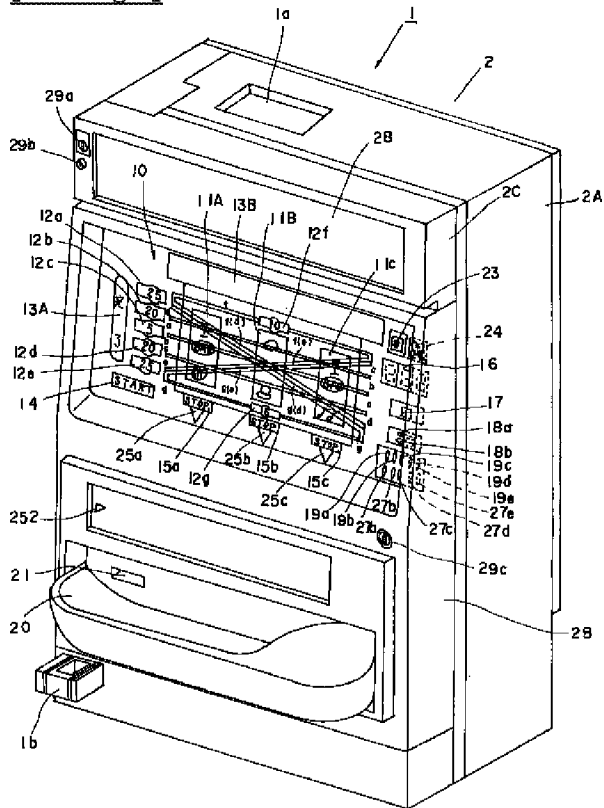
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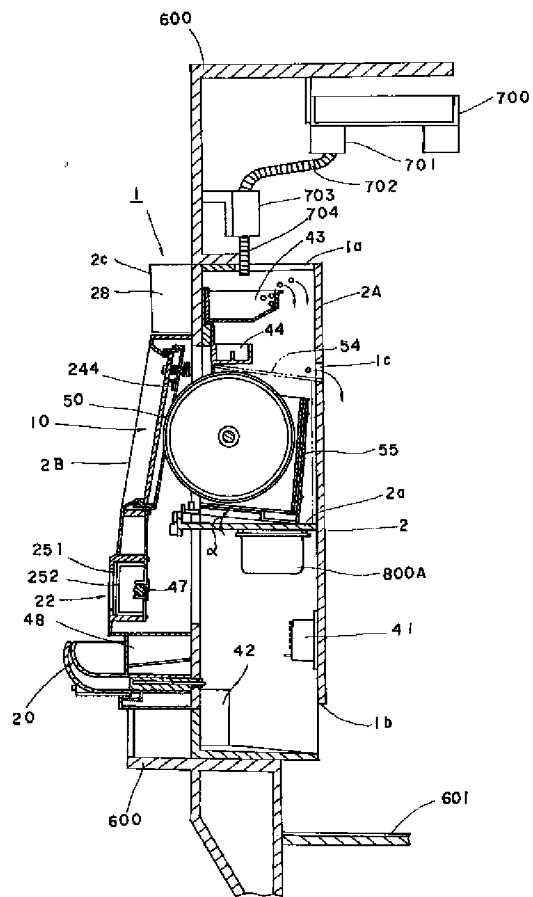
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DRAWINGS

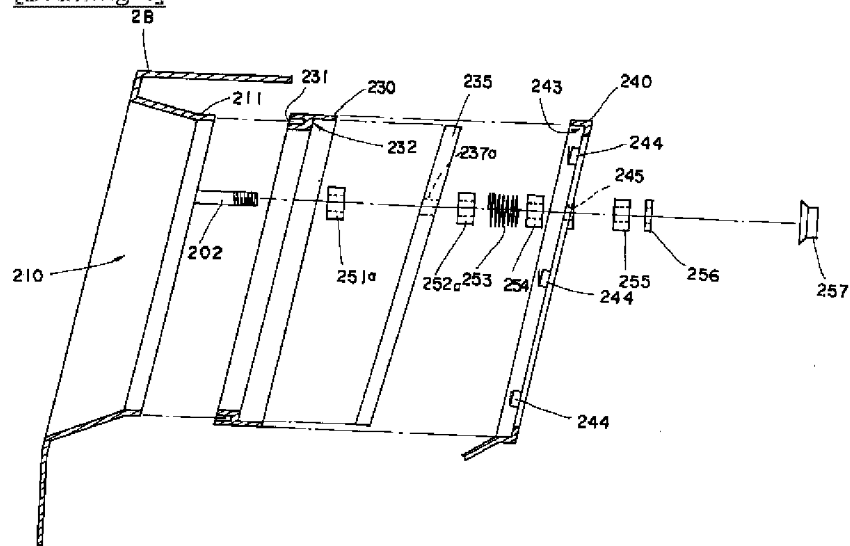
[Drawing 1]



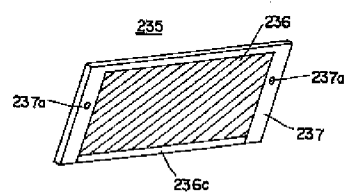
[Drawing 2]



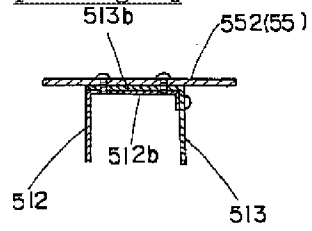
[Drawing 4]



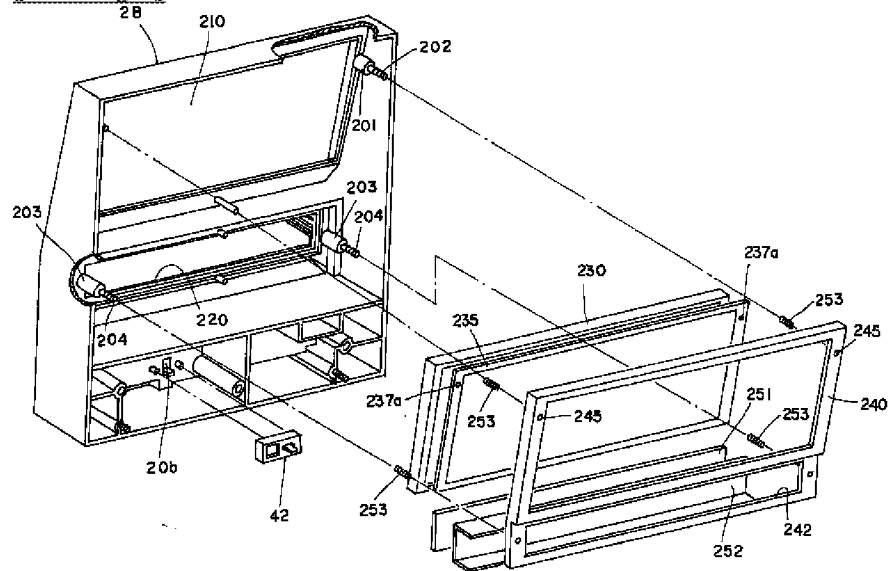
[Drawing 7]



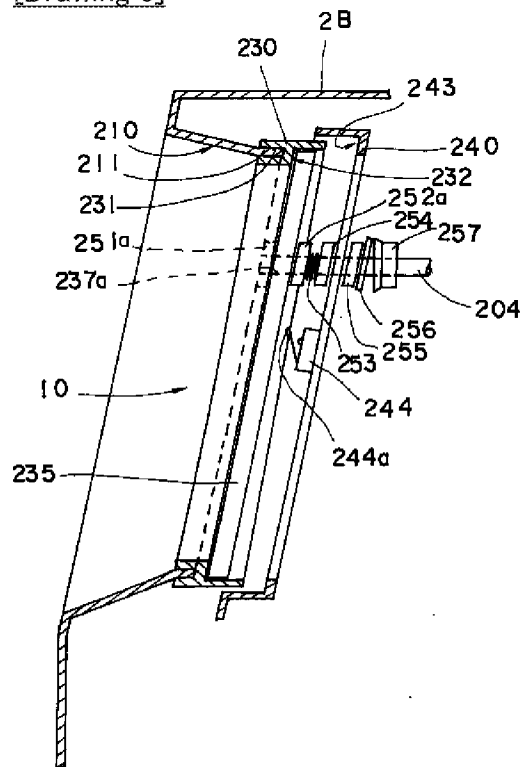
[Drawing 13]



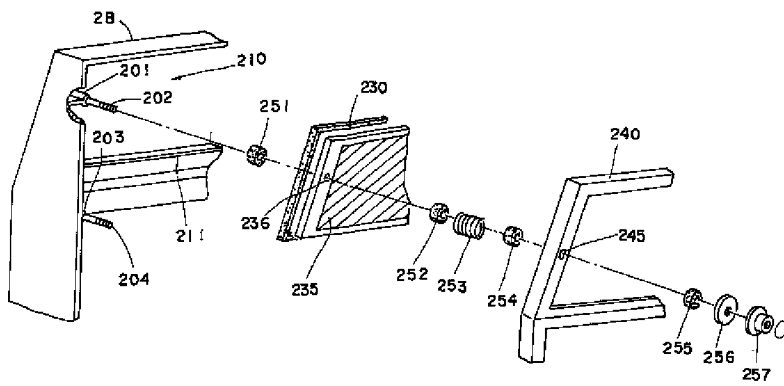
[Drawing 3]



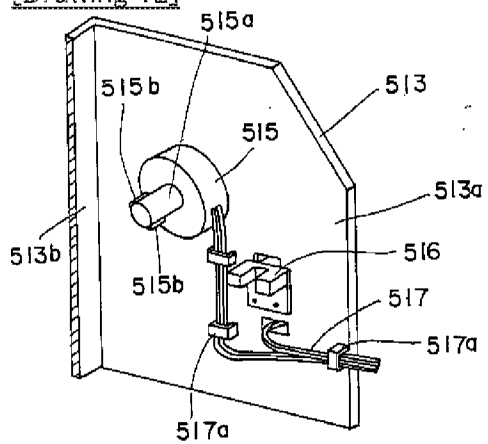
[Drawing 5]



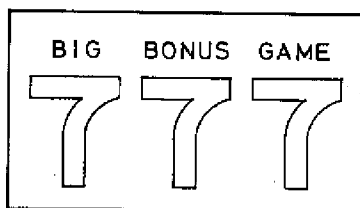
[Drawing 6]



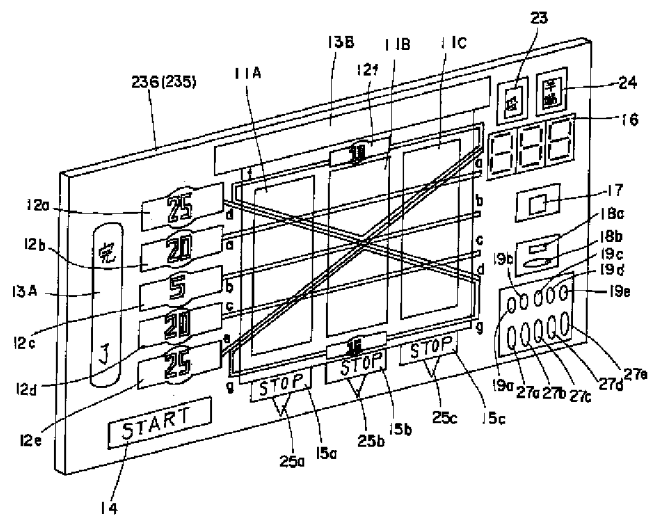
[Drawing 12]



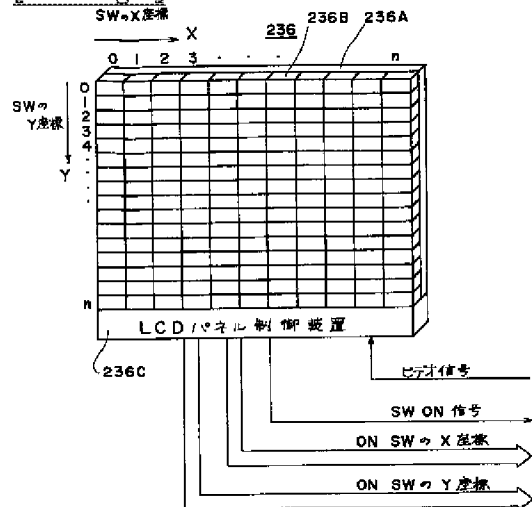
[Drawing 16]



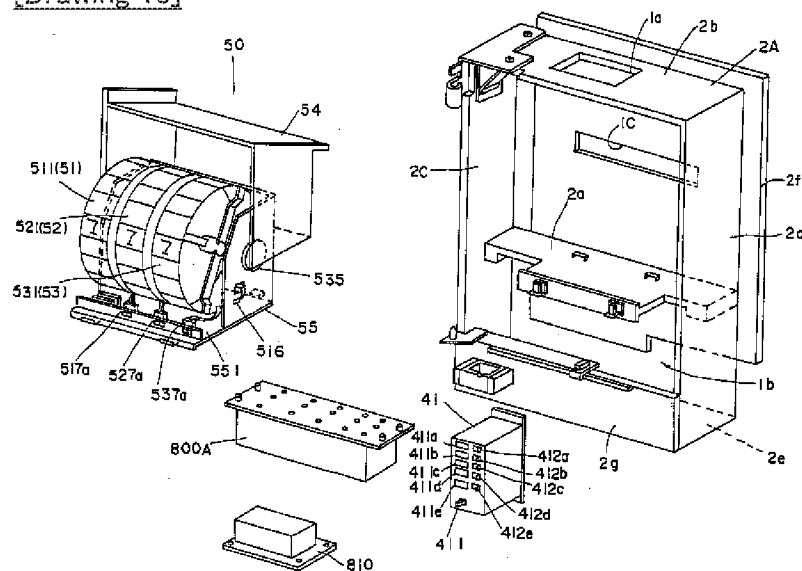
[Drawing 8]



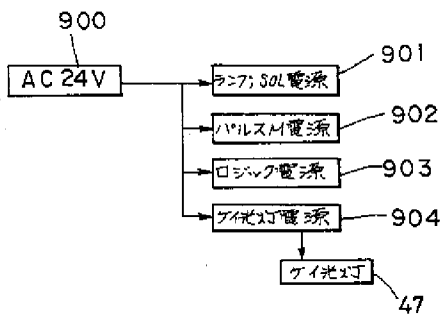
[Drawing 9]



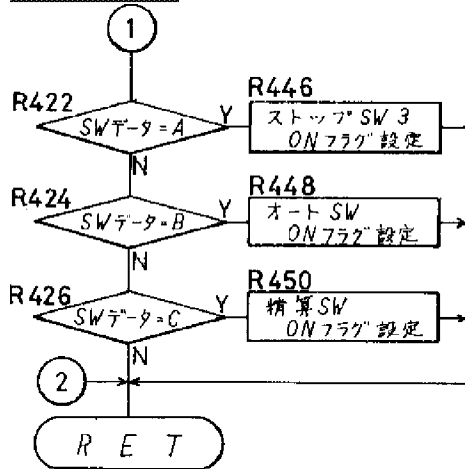
[Drawing 10]



[Drawing 18]

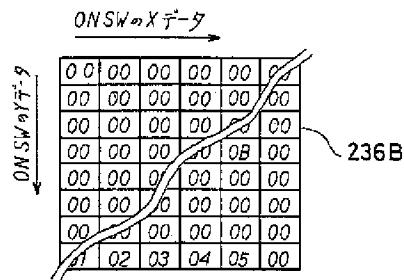


[Drawing 27]

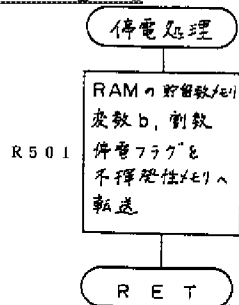


[Drawing 28]

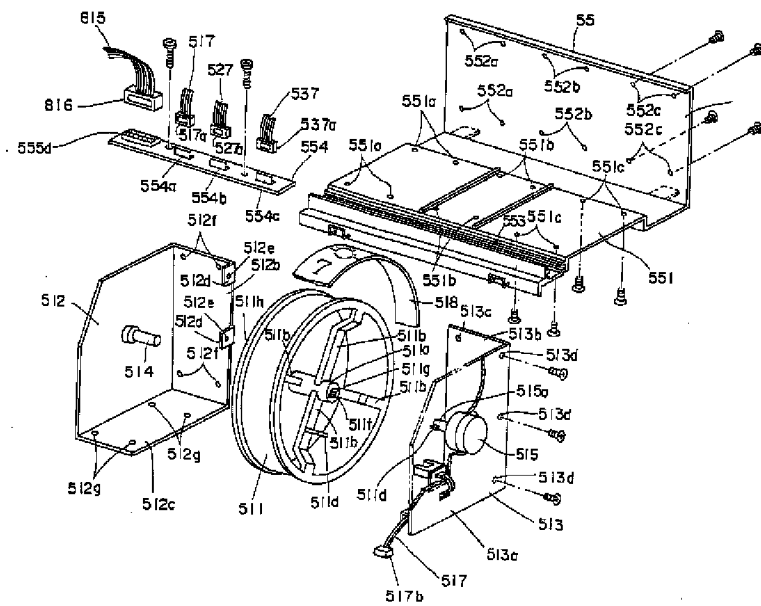
表示パターン1
SWテーブル



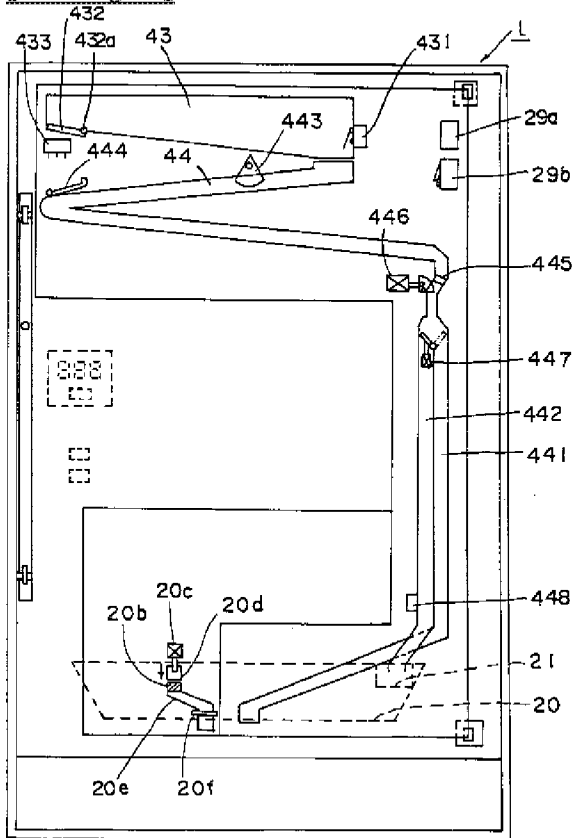
[Drawing 30]



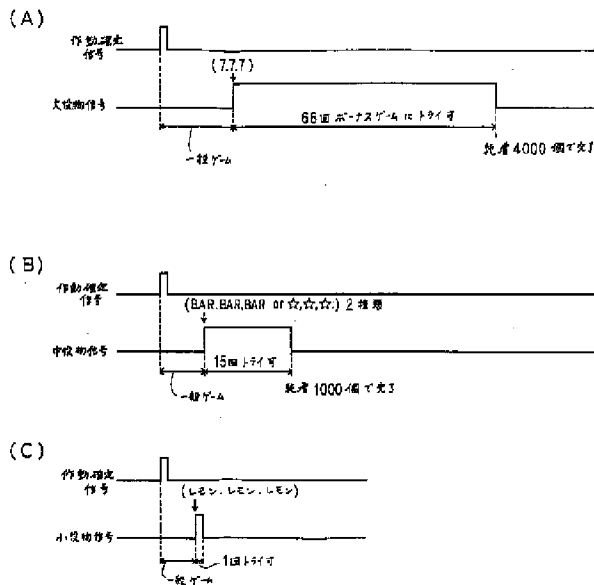
[Drawing 11]



[Drawing 14]



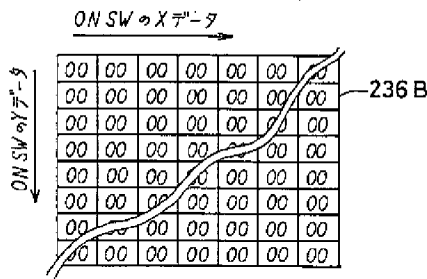
[Drawing 17]



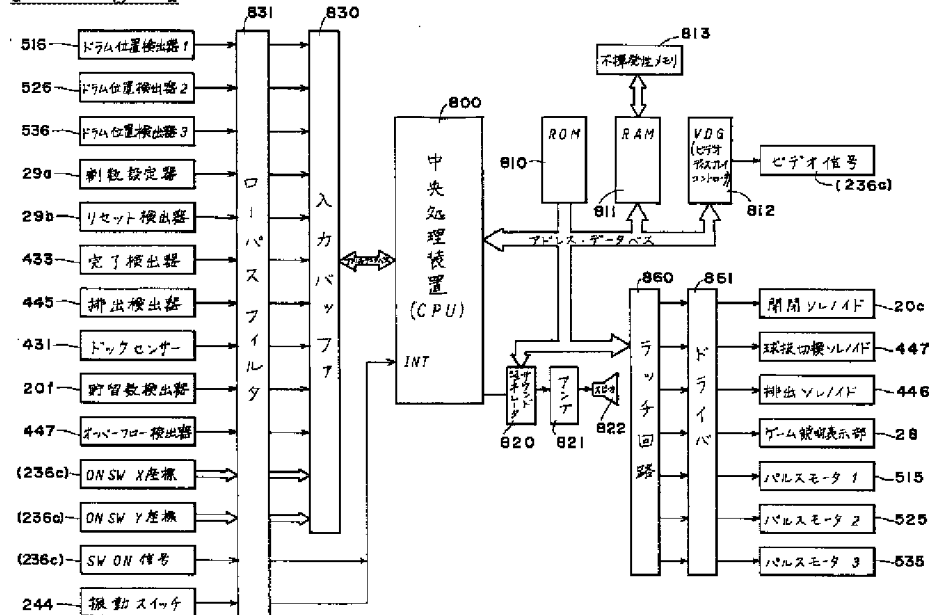
[Drawing 29]

表示パターン2

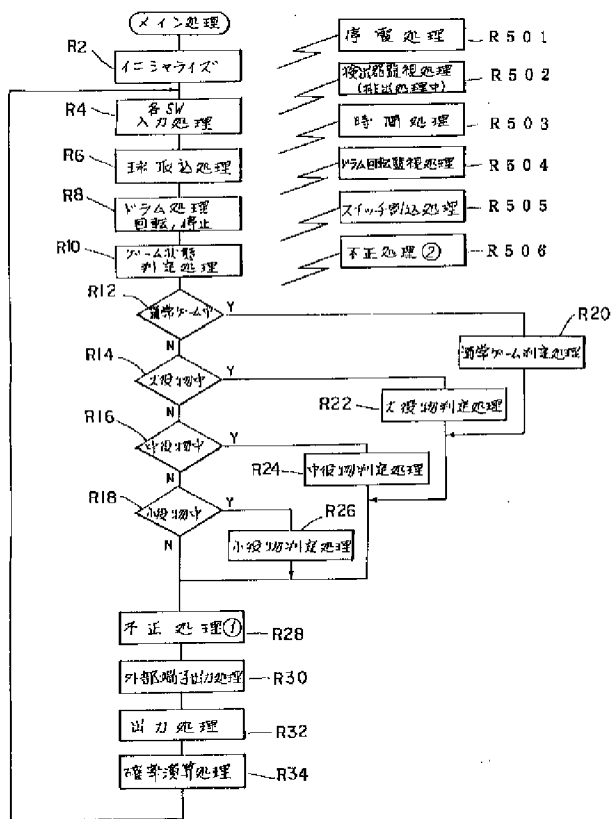
SWテーブル



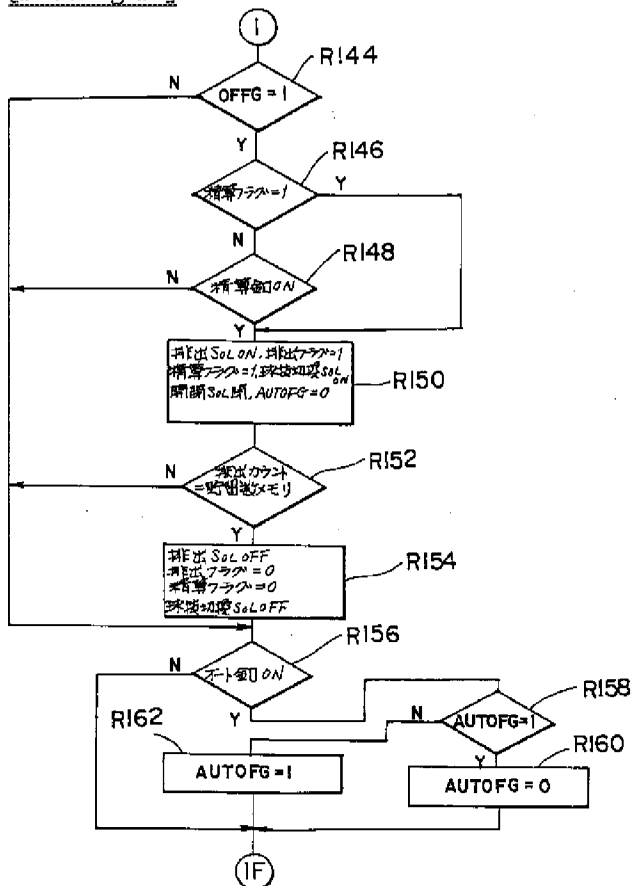
[Drawing 15]



[Drawing 19]



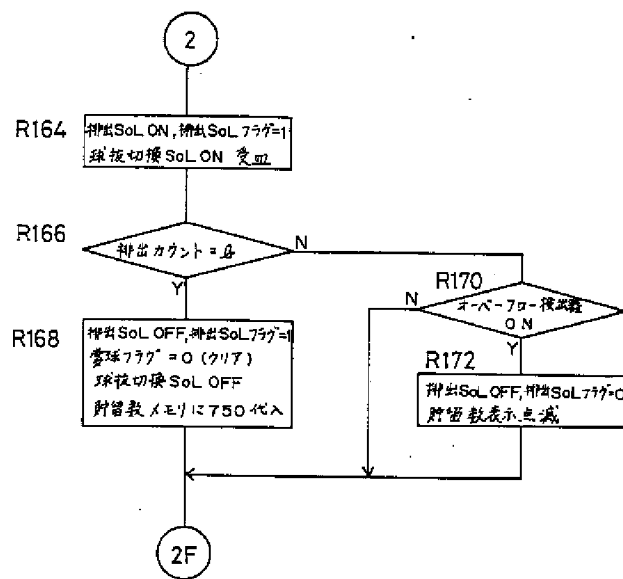
[Drawing 21]



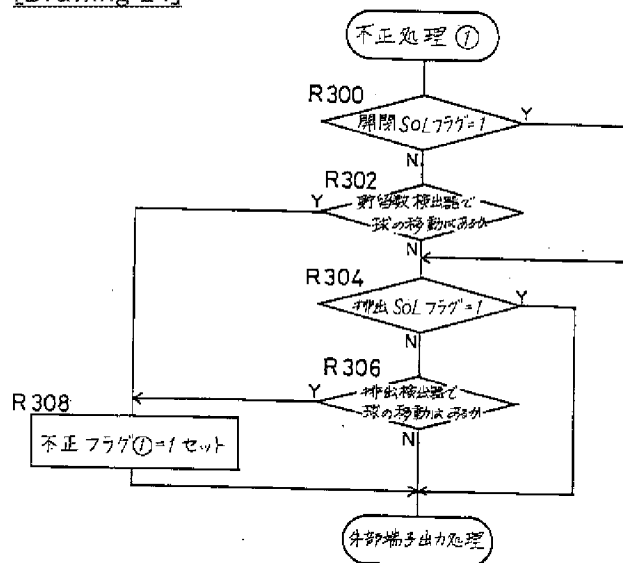
```

graph TD
    Start([出力監視処理]) --> R100{取り終フラグ=1}
    R100 -- Y --> I1((1))
    R100 -- N --> R102{球投入フラグ=1}
    R102 -- Y --> R104{球投入スイッチON}
    R102 -- N --> R106[球投入フラグ=1]
    R104 -- Y --> R106
    R104 -- N --> R116{開閉S/Lフラグ=1}
    R106 --> R108[開閉S/L]
    R108 --> R110{貯留数検出ON}
    R110 -- Y --> R112[貯留数検出カウンタ<750  
電荷カウンタへ転送]
    R110 -- N --> R116
    R112 --> R114{貯留数カウンタ=750}
    R114 -- Y --> R118[開閉S/L  
フラグ=0  
取り終フラグ=1]
    R114 -- N --> R120{b>0}
    R118 --> R120
    R120 -- Y --> R122[貯留数オーバーフラグ=1  
電荷カウンタへ転送]
    R120 -- N --> R124{ドックセンサON}
    R122 --> R124
    R124 -- Y --> R126[タンクに球(1000)補充]
    R124 -- N --> R128{排出検出器ON}
    R126 --> R128
    R128 -- Y --> R130[OFFG=1  
球つりフラグ=0]
    R128 -- N --> R136[球つりフラグ=1  
OFFG=0]
    R130 --> R132{OFFG=1}
    R132 -- Y --> R134[貯留数メモリ  
20算し、球つりフラグ  
メモリへ転送  
貯留数メモリ-750=0]
    R132 -- N --> R140{貯留数オーバーフラグ=1}
    R134 --> R142{b>0}
    R140 --> R142
    R142 -- Y --> I2((2))
    R142 -- N --> R140
    R136 --> I2F((2F))
    I2 --> End([処理終了])
    I2F --> End
  
```

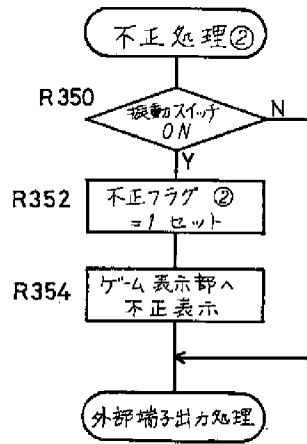
[Drawing 22]



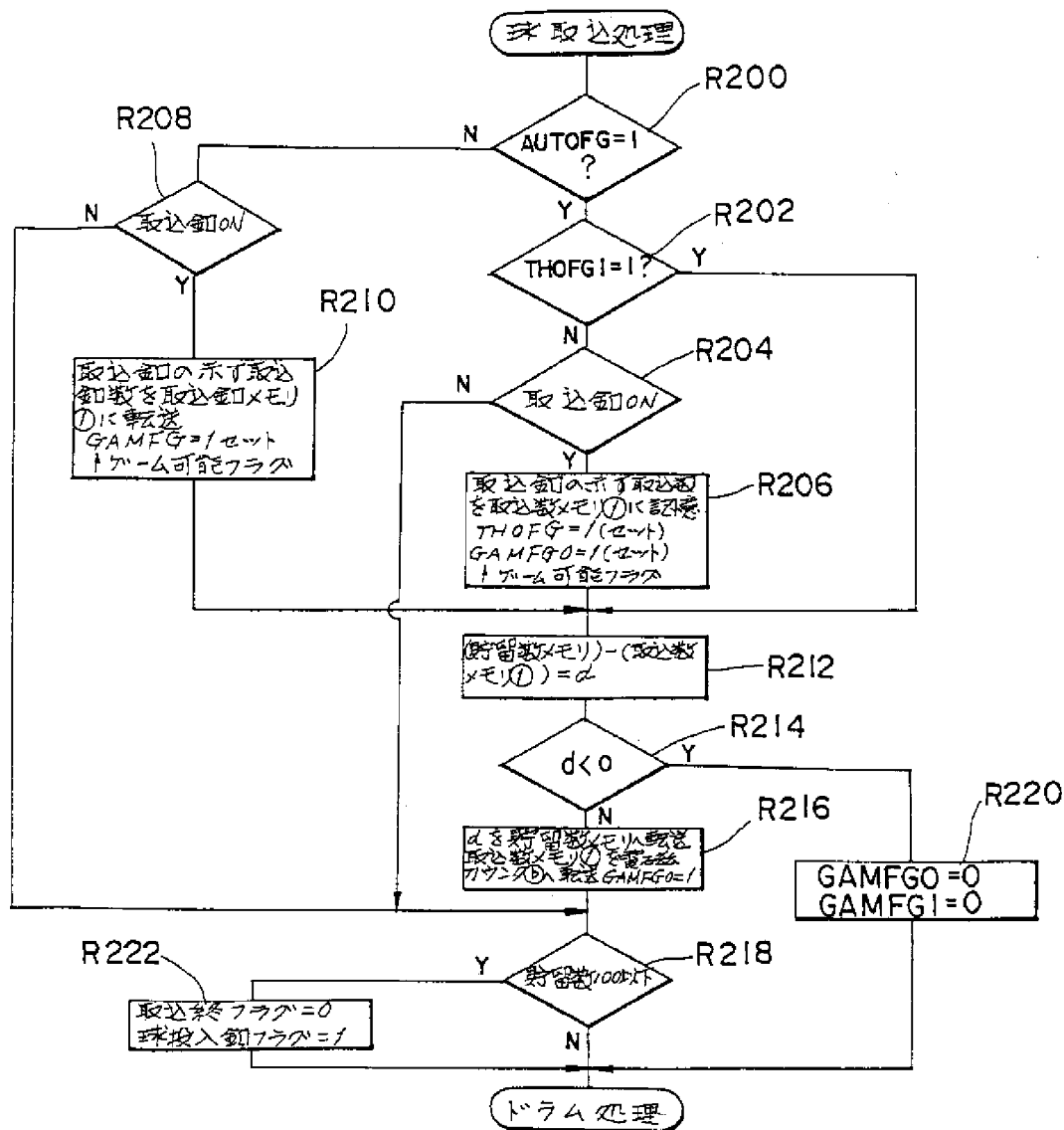
[Drawing 24]



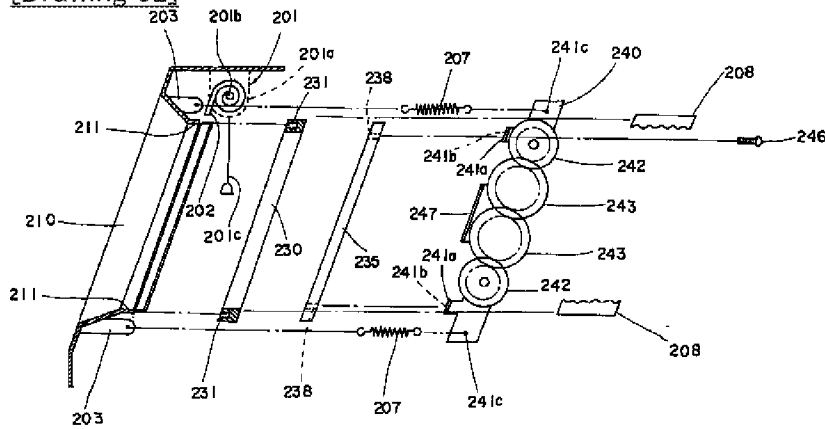
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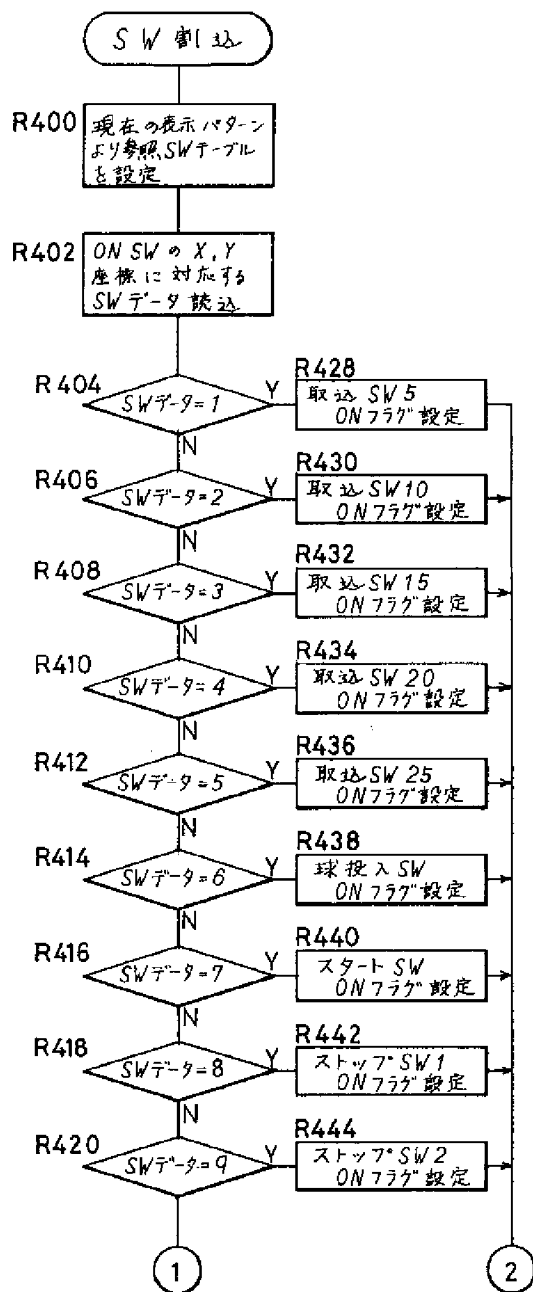
[Drawing 23]



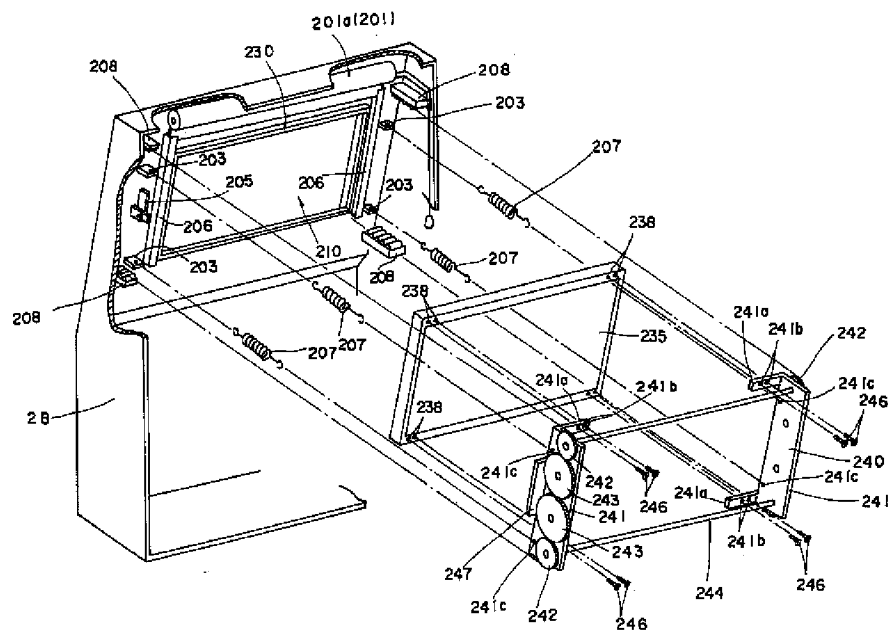
[Drawing 32]



[Drawing 26]



[Drawing 31]



[Translation done.]

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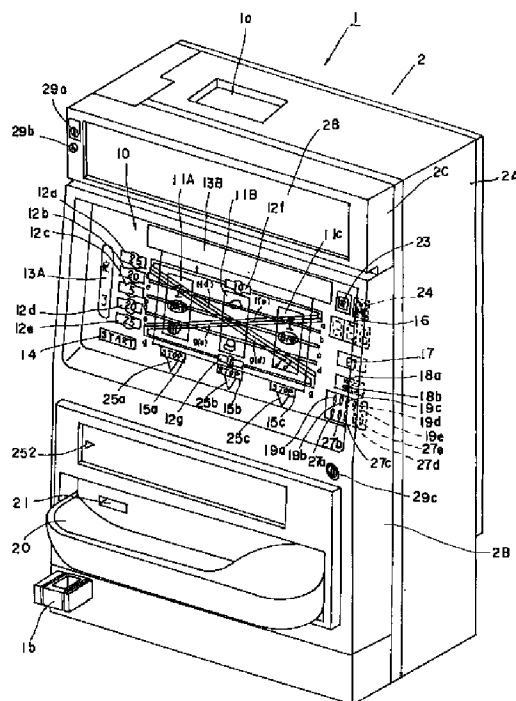
(71) 出願人 000132747
株式会社ソフィア
群馬県桐生市境野町7丁目201番地
(72) 発明者 新山 吉平
群馬県桐生市広沢町3-4297-13
(72) 発明者 伊東 広司
群馬県桐生市三吉町2-2-29
(74) 代理人 100090033
弁理士 荒船 博司 (外2名)

(54) 【発明の名称】 遊技装置

(57) 【要約】

【課題】単に、ドラムによる表示だけではなく、遊技に関するより興趣の高い表示を行えるような液晶表示機能を備えることにより、遊技者の興味を十分に引き付けることが可能な遊技装置を提供する。

【解決手段】複数の識別情報が備えられたドラムを複数配設し、該各ドラムの回転停止時に、前面側に形成された表示窓に対応して表示された識別情報の組合せ態様が、予め設定された有効賞ライン上において特別の組合せ態様となった場合に、遊技状態が遊技者にとって有利な大当たり状態となる遊技装置において、前記複数のドラムの前面側に、所定面積の液晶表示パネルを配設し、前記液晶表示パネルは、遊技の開始前においては、液晶表示により所定のシミュレーション表示を行う一方、遊技中においては、各ドラム表面の一部に対応した範囲の液晶を透光状態にして前記表示窓を形成するようにした。



【特許請求の範囲】

【請求項1】 複数の識別情報が備えられたドラムを複数配設し、該各ドラムの回転停止時に、前面側に形成された表示窓に対応して表示された識別情報の組合せ態様が、予め設定された有効賞ライン上において特別の組合せ態様となった場合に、遊技状態が遊技者にとって有利な大当たり状態となる遊技装置において、前記複数のドラムの前面側に、所定面積の液晶表示パネルを配設し、前記液晶表示パネルは、遊技の開始前においては、液晶表示により所定のシミュレーション表示を行う一方、遊技中においては、各ドラム表面の一部に対応した範囲の液晶を透光状態にして前記表示窓を形成するようにしたことを特徴とする遊技装置。

【請求項2】 前記液晶表示パネルは、遊技中において、液晶表示により前記有効賞ラインを識別可能な所定のライン表示にて行うことを特徴とする請求項1記載の遊技装置。

【請求項3】 前記液晶表示パネルは、前記特別の組合せ態様が表示された場合に、前記液晶表示により当該特別の組合せ態様が表示された有効賞ラインの色彩を変化させるようにしたことを特徴とする請求項2記載の遊技装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、複数の識別情報が備えられたドラムを複数配設し、該各ドラムの回転停止時に、前面側に形成された表示窓に対応して表示された識別情報の組合せ態様が、予め設定された有効賞ライン上において特別の組合せ態様となった場合に、遊技状態が遊技者にとって有利な大当たり状態となる遊技装置に関する。

【0002】

【従来の技術】従来より、外周面に複数の識別情報が設けられたドラムを例えば3個備えとともに、該ドラムの前面側に前面パネルを備え、該前面パネルに例えば各ドラムにおける3個の識別情報が前方から視認できるような表示窓を形成し、各ドラムの回転停止時に、表示窓内に表示された識別情報の組合せ表示態様が、複数の賞ラインのうちの有効化された賞ライン上において、例えば、「7、7、7」等の特別の組合せ表示態様となった場合に、遊技状態が遊技者にとって有利な大当たり状態となるような遊技装置が知られている。

【0003】

【発明が解決しようとする課題】ところで、従来の遊技装置においては、可変表示を行う手段が、メカ式のドラムを使用したものであるため、遊技が行われていない場合には、単に、停止したドラムの外面の一部の識別情報が表示窓から表示されているだけの変化性に乏しいものであった。

【0004】そのため、他の遊技装置との違いを出しづらくその遊技装置を強くアピールすることが困難であり、遊技を行う遊技装置を選択している遊技者の興味を引き付けることが難しいといった問題点があった。また、当該遊技装置で遊技を行う際には遊技者の操作がある程度必要であるため、あまりこのような遊技装置での遊技を行ったことのない初心者等にとっては、敬遠されることが多かった。

【0005】本発明は、上記課題を解決するためになされたもので、単に、ドラムによる表示だけではなく、遊技に関するより興味の高い表示を行えるような液晶表示機能を備えることにより、遊技者の興味を十分に引き付けることが可能な遊技装置を提供することを目的とする。

【0006】

【課題を解決するための手段】上記課題を解決するため、請求項1記載の発明は、複数の識別情報が備えられたドラムを複数配設し、該各ドラムの回転停止時に、前面側に形成された表示窓に対応して表示された識別情報の組合せ態様が、予め設定された有効賞ライン上において特別の組合せ態様となった場合に、遊技状態が遊技者にとって有利な大当たり状態となる遊技装置において、前記複数のドラムの前面側に、所定面積の液晶表示パネルを配設し、前記液晶表示パネルは、遊技の開始前においては、液晶表示により所定のシミュレーション表示を行う一方、遊技中においては、各ドラム表面の一部に対応した範囲の液晶を透光状態にして前記表示窓を形成するようにしたことを特徴とする。

【0007】前記液晶表示パネルは、遊技中において、液晶表示により前記有効賞ラインを識別可能な所定のライン表示にて行うようにしてもよい。

【0008】また、前記液晶表示パネルは、前記特別の組合せ態様が表示された場合に、前記液晶表示により当該特別の組合せ態様が表示された有効賞ラインの色彩を変化させるようにしてもよい。

【0009】請求項1に係る発明によれば、複数のドラムの前面側に配設された液晶表示パネルにより、遊技の開始前においては、液晶表示より所定のシミュレーション表示が行われ、一方、遊技中においては、各ドラム表面の一部に対応した範囲の液晶が透光状態となって表示窓が形成される。請求項2に係る発明によれば、液晶表示パネルが、遊技中において、液晶表示により有効賞ラインを識別可能な所定のライン表示にて行う。

【0010】請求項3に係る発明によれば、液晶表示パネルは、特別の組合せ態様が表示された場合に、液晶表示により当該特別の組合せ態様が表示された有効賞ラインの色彩を変化させるようにしたので、特別の組合せ態様が表示されたこと、およびそれがどの有効賞ラインにおいて成立したのか、を確実に認識させることができる。

【0011】

【発明の実施の形態】〔発明の第1の実施の形態〕図1にはこの発明の実施の形態としての遊技装置1の斜視図を示す。遊技装置1はその外郭を構成するケース2を備え、該ケース2はケース本体2Aとその前面側中央部に開閉可能に取り付けられた前ケース2Bと前面側上部に取り付けられた上部ケース2Cとから構成されている。前記前ケース2Bの右端中段には前ケース2Bが開かないように施錠するための錠29Cが設置されている。

【0012】前記前ケース2Bの前面側上部には複数の液晶表示素子が配設されたLCD（リキッドクリスタルディスプレイ）透明状態変化パネルからなるゲーム表示部10がやや奥まった状態で設けられている。

【0013】このゲーム表示部10の中央には、3つの可変表示部としての可変表示窓（表示窓）11A、11B、11Cが設けられ、各可変表示窓11A、11B、11Cを通して後側の回転ドラム装置50の可変表示が3つずつ見えるようになっている。回転ドラム装置50と可変表示窓11A、11B、11Cにより可変表示装置が構成される。

【0014】可変表示窓11Aの左方および上下方向には賭け数表示部12（12a～12g）が映像表示され、それら、各賭け数表示部12（12a～12g）には「5」、「10」、「15」、……の賭け数が映像表示されるようになっている。また、各賭け数表示部12（12a～12g）に映像表示される賭け数に対応する賞ラインとして例示する組合せ指定表示ラインa～gが映像表示されるようになっており、各種賞態様が成立したときに、それと対応した表示ラインa～gの色彩が変化されることによって賞態様成立表示が明瞭にされるようになっている。

【0015】前記賭け数表示部12の下方にはスタートスイッチ表示部14が映像表示されるようになっている。また、各可変表示窓11A、11B、11Cの下方にはストップ表示部15a～15cとストップスイッチ表示部25a～25cとが各一対ずつ映像表示されるようになっている。

【0016】ゲーム表示部10の左方には完了表示部13Aが、上部中央には得点表示部13Bがそれぞれ映像表示されるようになっている。また、右方上方には投入スイッチ表示部23と半端球表示部24が、その下には記憶数表示手段としての貯留数表示部16が、さらにその下方には精算スイッチ表示部17がそれぞれ映像表示されるようになっている。また、右下方部にはオート表示部18aとオートスイッチ表示部18bが映像表示されるようになっている。さらに、その下方には選択手段として例示する取込スイッチ表示部27a～27eと取込数表示部19a～19eとが1対1に対応した状態で映像表示されるようになっている。

【0017】ゲーム表示部10の上方にはドットマトリ

クス表示式のゲーム説明表示部28が設けられ、球受皿20の上方には表示パネル252が設置されている。

【0018】前記取込スイッチ表示部27a～27eのうちの取込スイッチ表示部27aは球の賭け数を「5」に設定するスイッチで、該取込スイッチ表示部27aが押されたときには、効果音が発生されるとともに、取込数表示部19aゲーム表示部10の賭け数「5」の表示された賭け数表示部12cと中段の組合せ指定表示ラインb～bの色彩が変化される。この賭け数「5」のときには、中段列の組合せ指定表示ラインb～b上の表示の組合せのみゲーム結果として有効とされる。

【0019】取込スイッチ表示部27bは球の賭け数を「10」に設定するスイッチで、該取込スイッチ表示部27bが押されたときには、効果音が発生されるとともに、取込数表示部19bとゲーム表示部10の賭け数「5」の表示された賭け数表示部12cと中段の組合せ指定表示ラインb～bの色彩が変化される他、賭け数「10」の表示された賭け数表示部12f、上の逆三角形形状の組合せ指定表示ラインf～fの色彩が変化される。この賭け数「10」のときには、中段列の組合せ指定表示ラインb～b上の表示の組合せが有効となる他、組合せ指定表示ラインf～fのV字状ラインに沿った表示の組合せも有効となる。

【0020】取込スイッチ表示部27cは球の賭け数を「15」に設定するスイッチで、該取込スイッチ表示部27cが押されたときには、効果音が発生されるとともに、取込数表示部19c、ゲーム表示部10の賭け数「5」、「10」の表示された賭け数表示部12c、12fと中段列の組合せ指定表示ラインb～bおよび上の逆三角形形状の組合せ指定表示ラインf～fの色彩が変化される他、賭け数「15」の表示された賭け数表示部12g、下の三角形形状の組合せ指定表示ラインg～gの色彩が変化される。この賭け数「15」のときには、中段列の組合せ指定表示ラインb～b上の表示の組合せおよび上の逆三角形形状の組合せ指定表示ラインf～fのV字状ラインに沿った表示の組合せが有効になる他、下の三角形の組合せ指定表示ラインg～gの逆V字状ラインに沿った表示の組合せも有効となる。

【0021】取込スイッチ表示部27dは球の賭け数を「20」に設定するスイッチで、該取込スイッチ表示部27dが押されたときには、効果音が発生されるとともに、取込数表示部19d、ゲーム表示部10の賭け数「5」、「10」、「15」の表示された賭け数表示部12c、12f、12g、中段の組合せ指定表示ラインb～b、上の逆三角形形状の組合せ指定表示ラインf～fおよび下の三角形形状の組合せ指定表示ラインg～gの色彩が変化される他、賭け数「20」の表示された賭け数表示部12b、12d、上段列および下段列の組合せ指定表示ラインa～a、c～cの色彩が変化される。この賭け数「20」のときには、中段列の組合せ指定表示ラ

インb-b上の表示の組合せ、上の逆三角形の組合せ指定表示ラインf-fのV字状ラインに沿った表示の組合せおよび下の三角形の組合せ指定表示ラインg-gの逆V字状ラインに沿った表示の組合せが有効になる他、上段列および下段列の組合せ指定表示ラインa-a、b-b上の表示の組合せが有効となる。

【0022】最大選択手段として例示する取込スイッチ表示部27eは球賭け数を「25」に設定するスイッチで、該取込スイッチ表示部27eが押されたときには、取込数表示部19e、ゲーム表示部10の賭け数「5」、「10」、「15」、「20」の表示された賭け数表示部12c、12f、12g、12b、12d、中段の組合せ指定表示ラインb-b、上の逆三角形の組合せ指定表示ラインf-f、下の三角形の組合せ指定表示ラインg-gおよび上段列および下段列の組合せ指定表示ラインa-a、c-cの色彩が変化される他、賭け数「25」の表示された賭け数表示部12a、12eおよび右下がりおよび右上がり斜めの組合せ指定表示ラインd-d、e-eの色彩が変化される。この賭け数「25」のときには、中段列の組合せ指定表示ラインb-b上の表示の組合せ、上の三角形の組合せ指定表示ラインf-fのV字状ラインに沿った表示の組合せ、下の三角形の組合せ指定表示ラインg-gの逆V字状ラインに沿った表示の組合せ、上段列および下段列の組合せ指定表示ラインa-a、c-c上の表示の組合せの他、右下がりおよび右上がりの斜めの組合せ指定表示ラインd-d、e-e上の表示の組合せが有効となる。

【0023】前記上部ケース2Cの前面側には、情報表示装置として、ドットマトリクス表示式のゲーム説明表示部28が設けられている。このゲーム説明表示部28にはゲームについての説明表示（メッセージ）や不正表示などがそれぞれドットマトリクス表示される。

【0024】前記賞態様表示部28aの左方にはキー（図示省略）を差し込んで回すことによって「大当り」の発生確率を調整するための割数設定器29aおよび打止めリセットピン差込み部29bが設けられている。

【0025】ケース本体2Aの上壁部には球導入口1aが設けられ、前ケース2Bの前面側下部には球受皿20が手前側に突出して設けられている。この球受皿20の上流側奥部には球出口21が設けられ、球受皿20の下流側は後述する投入口を介して遊技装置1内部に通じている。また、ケース本体2A下部前面の左側には灰皿1bが設置されている。

【0026】上記のように概略構成された遊技装置はそれに設定されたコンピュータシステム等の制御手段（後述）や機械的および電氣的構成によって次のような遊技動作が行なわれる。

【0027】まず、電源が投入された遊技前の状態においてはゲーム表示部10裏側の可変表示装置の一構成要素としての可変表示用回転ドラム装置50（後述）は停

止して、ゲーム表示部10に投入スイッチ表示部23が映し出される他、ゲーム表示部10全体に広告表示やシュミレーション（シミュレーション）表示が映し出されている。

【0028】この状態で受皿20に遊技球（図示省略）が入れられて投入スイッチ表示部23が押されると、受皿20の右側の投入口（後述）から遊技装置1内へ遊技球が飲み込まれるとともに、ゲーム表示部10の広告表示やシュミレーション表示などが消えて、中央が可変表示窓11A、11B、11Cとして透明な窓となり、その周りに、新たに賭け数表示部12（12a～12g）、組合せ指定表示ラインa～g、スタートスイッチ表示部14、ストップ表示部15a～15c、ストップスイッチ表示部25a～25c、完了表示部13A、得点表示部13B、投入スイッチ表示部23、半端球表示部24、貯留数表示部16、精算スイッチ表示部17、オート表示部18a、オートスイッチ表示部18b、取込スイッチ表示部27a～27e、および取込数表示部19a～19eが映像表示される。

【0029】遊技装置1内に飲み込まれる遊技球は所定個数（例えば750個）までの範囲内とされ、その飲み込まれた球数が制御装置（後述）の記憶手段として例示する記憶部（RAM811）に記憶される。その記憶数が貯留数表示部16に数字表示される。その飲み込まれた球数が所定数（例えば、750個）を超える場合はその超えた分の球が球出口21から球受皿20中に戻される。また、その飲み込まれた球数が所定個数（例えば、750個）以下であっても、その飲み込まれた球数が「5」の倍数となっていない場合は、その余分な半端球が生じたときには、半端球表示部24の色彩が変化して、半端球が生じたことを知らせ、その半端球が球出口21から受皿20中に戻される。その戻された時点において半端球表示部24が元の色彩に戻る。

【0030】この状態で、遊技者が希望する賭け数に対応する取込スイッチ表示部（27a～27e）のうちの1つを押すと、その押した取込スイッチ表示部に対応した取込数表示部（19a～19e）の色彩が変化してその賭け数の遊技球が取り込まれて貯留数表示部16の数字表示がその賭け数の分だけ減算された数字表示になる。と同時に、その賭け数に対応した賭け数表示部12（12a～12e）と組合せ指定表示ライン（a～g）が点灯される。

【0031】この状態で、遊技者がスタートスイッチ表示部14を操作すると、スタートスイッチ表示部14の色彩が変化するとともにストップ表示部15a～15cの色彩が変化されて、内部の3つのドラム（後述）が相互に独立して回転を開始しそれに伴って可変表示窓11A、11B、11C中の表示の変化が開始される。その開始のときから所定時間経過後、左から順にドラム（後述）が停止されるとともにストップ表示部15a～15

cが元の色彩に戻されながら左の可変表示窓11Aの表示から順に確定される。ただし、その所定時間経過前に遊技者によってストップスイッチ表示部25a～25cが押された場合はその押されたストップスイッチ表示部(15a, 15b, 15c)の上の可変表示窓(11A, 11B, 11C)中のドラムの回転が停止されその可変表示窓(11A, 11B, 11C)中の表示の変化が停止されて確定するとともにストップ表示部15a～15cが元の色彩に戻る。そのストップスイッチ表示部(25a, 25b, 25c)の押す順序はいずれの順に行なってもよい。

【0032】遊技者が上記操作を繰り返すことによってゲームが行なわれるが、そのゲームの結果、停止時における可変表示窓11A, 11B, 11C中の表示の組合せ(そのゲームの開始時に遊技者が取込スイッチ表示部(27a～27e)を押すことによって指定された組合せ指定表示ライン(a～g)に沿った表示の組合せに限る)が予め定められた賞態様のいずれかに該当すると、効果音が発せられて得点表示部13Bに賞球数が表示されるとともに、賞態様成立表示としてその成立した表示ライン(a～gのいずれか)の色彩がさらに変化され、その賞態様に応じた数の賞球が与えられる。その場合に、2つ以上の賞態様に該当したときには得点表示部13Bには2種以上の賞球数表示がなされ、各賞態様に対する賞球数を加算した合計数の賞球が与えられる。その賞球は貯留数表示部16の貯留数表示が所定数(例えば、750個)となるまではそのゲーム直前の貯留数にその賞球数を加算した新たな貯留数が制限装置(後述)の記憶部に記憶されるとともに貯留数表示部16に更新表示される。

【0033】その場合に、そのゲーム直前の貯留数記憶(貯留数メモリ)および貯留数表示部16の貯留数表示が「750」を超えるときには、その「750」を超える分の賞球が球出口21を介して受皿20中に放出されて貯留数記憶および貯留数表示部16の貯留数表示が「750」まで戻される。

【0034】そのゲームの結果、特に、可変表示窓11A, 11B, 11C中の表示の組合せが“大当り”を発生させる表示の組合せ(例えば、「7, 7, 7」の組合せ)となったときには、“大当り”が発生し、その“大当り”の発生を知らせる効果音が発せられる。と同時に、得点表示部13Bに得点表示(賞球数表示)がなされて所定数(例えば、90個)の賞球排出が行なわれ、しかる後、次のような“大当り”のボーナスゲームに移行される。

【0035】この“大当り”のボーナスゲーム時には、オート表示部18a中の色彩が変化されて、1回当たりの賭け数としての取込み数が自動的に「5」となり、「5」の表示された賭け数表示部12cおよび、中段の組合せ指定表示ラインb-bの色彩が変化されて中段の

組合せ指定表示ラインb-b上における組合せのみ有効となる。この“大当り”の間中はこの中段の組合せ指定表示ラインb-b上に所定の表示の組合せ(例えば、「JAC, JAC, JAC」の組合せ)が揃い易くなり、その組合せが揃うごとに所定数(例えば、90個)の賞品球が与えられる。“大当り”の間中においては、そのようなボーナスゲームが所定回数(例えば、66回)まで行なわれることとなる。ただし、その所定回数が終了する以前に、その“大当り”の間中における遊技者の賞球獲得数(実際に増えた分)が所定個数(例えば、4000個)に達したときには、その時点で、通常のゲーム状態に戻される。この“大当り”のゲーム期間中に他の賞態様が発生したときには通常遊技時におけると同様の賞球が与えられる。

【0036】また、通常のゲーム中に、可変表示窓11A, 11B, 11C中の表示の組合せが“中当り”を発生させる表示の組合せ(例えば、「BAR, BAR, BAR」や「☆, ☆, ☆」の表示の組合せ)となったときには、“中当り”が発生して“中当り”の発生を知らせる効果音が発せられる。と同時に、得点表示部13Bに得点表示がなされて所定数(例えば、90個)の賞球排出が行なわれ、しかる後、次のような“中当り”のボーナスゲームに移行される。

【0037】この“中当り”のボーナスゲームも上記“大当り”のボーナスゲームと同様にして行なわれる。ただし、この“中当り”におけるボーナスゲームの回数や賞球獲得個数は上記“大当り”のボーナスゲームにおけるよりも制限され、例えば、ボーナスゲームの回数制限は15回で、賞球獲得個数制限は1000個とされる。

【0038】また、通常のゲーム中に、可変表示窓11A, 11B, 11C中の表示の組合せが“小当り”を発生させる表示の組合せ(例えば、「レモン, レモン, レモン」の絵の組合せ)となったときには、“小当り”が発生して“小当り”の発生を知らせる効果音が発せられる。と同時に、得点表示部13Bに得点表示がなされて所定数の賞球排出が行なわれ、しかる後、“小当り”のボーナスゲームに移行される。

【0039】この“小当り”のボーナスゲームも上記“大当り”のボーナスゲームと同様にして行なわれる。ただし、この“小当り”のボーナスゲームの回数は上記“中当り”におけるボーナスゲーム回数に比べて制限され、例えばボーナスゲームが1回限りで終了される。

【0040】通常ゲーム中に、可変表示窓11A, 11B, 11C中の表示の組合せが他の一般の賞態様を発生させる態様となったときには得点表示部13Bにその賞態様に応じた得点表示がなされて賞球が与えられ、上記のようなボーナスゲームは行なわれない。

【0041】上記ゲームの進行に応じてゲーム説明表示部28にメッセージ表示がドット表示にてなされる。

【0042】遊技中に取込スイッチ表示部27a～27eをいちいち押して賭け数セットを行なうのが面倒なときには所望の取込スイッチ表示部(27a～27e)を押した後にオートスイッチ表示部18bを押せば、その取込スイッチ表示部に対応した取込数表示部の色彩が変化されるとともにオート表示部18aの色彩が変化されてオート状態となる。このオート設定以後はそのセットされた賭け数にて連続してゲームが行なわれることとなる。そのオート状態を解除したいときには遊技者がもう一度オートスイッチ表示部18bを押せばオート表示部16が元の色彩の戻されてオート状態が解除される。

【0043】賞態様の発生により多くの賞球が排出されて予定排出数に達したときには完了表示部13Aに完了の文字が映像表示される。

【0044】また、遊技者が精算したい場合には精算スイッチ表示部17を押せば、貯留数表示部16に表示されている数字と同数の球が球出口21を介して受皿20中に戻され、貯留数表示部16の表示も「零」に戻る。と同時に、ゲーム表示部10の表示が広告表示部又はシュミレーション表示に戻る。

【0045】図2には、遊技場の島設備600に上記遊技装置1が設置された状態の縦断側面図を示す。

【0046】遊技装置1のケース本体2A内にはドラム載置台2aが設けられている。このドラム載置台2aの上側に回転ドラム装置50が設置され、下側に制御装置800Aが設置されている。

【0047】ケース本体2A内の下部後壁部には管理装置(図外)とデータのやりとりを行なうターミナルボックス41が設置されている。また、ケース本体2A内の下部前側には上記受皿20から投入口(後述)を介して取り入れられる遊技球の計数管理を行なう遊技球取込装置42が設置されている。その取り込まれた遊技球はその取込装置42によって計数された後、ケース本体2A裏側下部の流出口1bを介して島設備600下部裏側の回収樋601上へ回収されるようになっている。ケース本体2A内上部の前壁部には賞球用貯留タンク43が設置され、その下方には該貯留タンク43中に賞球を導出させる導出樋44が設置されている。ケース本体2Aの上壁部には上記球導入口1aが設けられている。

【0048】前カバー2Bの上部で前記回転ドラム装置50の前方に対応する位置にはやや引込んだ状態で上記ゲーム表示部10が設けられている。

【0049】前カバー2Bの下部前面側には透明パネル251、表示パネル252、蛍光灯47、球受皿20等が設置されている。球受皿20が設置されている位置に対応した前カバー2Bの下部内側には上記球出口21(図1)に通ずる球導出口48が設けられている。

【0050】島設備600内の上部には補球樋700が設置され、該補球樋700の下部には分流樋701が設置されている。分流樋701の下部にはシュート70

2、計数器付補球装置703、誘導樋704が順に取り付けられている。前記計数器付補球装置703は島設備600の裏側に固定され、前記誘導樋704はケース本体2A上部の上記球導入口1aを介して賞球用貯留タンク43の上方に至っている。そして、補球樋700中の予備球が分流樋701、シュート702、計数器付補球装置703、誘導樋704を介して、計数器付補球装置703により計数管理されながら貯留タンク43中に補球されるようになっている。

【0051】また、ケース本体2Aの裏側上部には上記貯留タンク43からこぼれた球をケース本体2Aの裏側へ流出させて島設備600裏側下部の回収樋601上へ回収させるこぼれ球回収口1cが設けられている。

【0052】図3には、前ケース2Bの裏側分解斜視図を示す。

【0053】表ケース2Bの前側上部にはLCDパネル設置用開口部210が設けられ、その下方には窓部として例示する表示パネル設置用開口部220が設けられている。また、開口部210、220の左右裏側にはそれぞれ取付用支柱201、201、203、203が突設され、それら各取付用支柱201、201、203、203の中心部には植込ボルト202、202、204、204が植設されている。

【0054】そして、上側の開口部210には、その裏側からゴムパッキン230を介して、前面パネルとして例示するLCDパネル235が、下側の開口部220にはその裏側から透明パネル251を介して表示パネル252がそれぞれ配置され、さらに、それらの裏側に所定間隔へだてて振動感知棒240が配置された状態で、後で詳しく説明するように、前ケース2Bの裏側に固定されている。

【0055】また、前ケース2Bの下部前側には投入口20bが設けられ、該投入口20bの裏側には遊技球取込装置42が取付けられている。

【0056】図4にはLCDパネル235の取付構造を分解縦断側面図として示す。

【0057】図3および図4に示すように、前ケース2Bのゲーム表示部設定用開口部210はその内側が全周に亘って後方に折曲しその先端部がパッキン取付部211となっている。

【0058】前記ゴムパッキン230は図3に示すように内側が開口部となった矩形棒状に形成され、その前側には図4に示すように前記前ケース2Bのパッキン取付部211に外嵌し得る嵌合溝231が、後部内側には図4に示すLCDパネル235を設置するための設置用段部232がそれぞれ周囲全体に亘って設けられている。

【0059】前記LCDパネル235は前記ゴムパッキン230の前記設置用段部232中に収納し得る形状大きさとなっており、その左右位置には前ケース2Bの前記植込ボルト202に嵌合し得るボルト通し孔237a

が設けられている。このLCDパネル235の他の構成については後に詳しく述べる。

【0060】前記振動感知棒240は前記LCDパネル235と表示パネル252とに対応する位置にそれぞれ開口部241、242を有する矩形棒状に形成されている。また、上側開口部241の外側周囲の前側は断面L字状凹状部243となっており、該凹状部243が前記ゴムパッキン230の外形より1周り大きく形成されている。前記凹状部243中には図4に示すように適宜配置をもって振動スイッチ244が複数設置されている。また、振動感知棒240の左右位置には前ケース2Bの前記植込ボルト202に嵌合し得るボルト通し孔245が設けられている。

【0061】図4中、符号251a、252a、253、254、255、256、257は、それぞれ、前ケース2Bに、ゴムパッキン230、LCDパネル235および振動感知棒240を取り付けるための取付手段を構成するゴムワッシャ、ゴムワッシャ、コイルバネ、ゴムワッシャ、ゴムワッシャ、鉄ワッシャ、フランジナットである。

【0062】図5には前ケース2BにLCDパネル235が取り付けられた状態の縦断側面図を示す。

【0063】前ケース2Bの上側開口部210にゲーム表示部10が次のようにして設置されている。

【0064】即ち、まず、開口部210のパッキン取付部211に嵌合溝231が外嵌された状態にゴムパッキン230が配置されるとともに、植込ボルト204、204にゴムワッシャ251a、251aが外嵌されている。その後、ボルト通し孔237a、237aを植込ボルト204、204に外嵌させることにより、LCDパネル235がゴムパッキン230の背面側の設置用段部232中に収納されている。またその後に、ゴムワッシャ252a、コイルバネ253、ゴムワッシャ254が順に植込ボルト204に外嵌されてから、振動感知棒240がそのボルト通し孔245を植込ボルト204に通された状態で設置されている。

【0065】そして、その後、左右の植込ボルト204、204にゴムワッシャ254、鉄ワッシャ256が順に外嵌され、しかる後、左右の植込ボルト204にフランジナット257が螺合されることによって、前ケース2Bの裏側にゴムパッキン230を介してLCDパネル235と振動感知棒240が取り付けられている。

【0066】その取り付けられた状態において、振動スイッチ244の感知片244aはLCDパネル235から所定間隔離れていて、コイルバネ253は適度に縮んで適度なクッション性を保持している。

【0067】この状態で、LCDパネル235が遊技者によって強く押されると、該LCDパネル235がコイルスプリング253の力に抗して後退する。その後退に伴い、LCDパネル235がマイクロスイッチ244の

感知片244aを弾性変化させることによってマイクロスイッチ244がオンされ、その入力信号が制御装置800Aに入力されてゲーム説明表示部28に不正表示がなされてゲーム不能な状態にされるとともに、中央管理室（図外）に届くようになっているので、不正がただちに検出され、LCDパネル235が破損されるなどの大事の発生を防止することができる。

【0068】図6にはLCDパネル235の設置構造を部分分解斜視図として詳しく示す。

【0069】同図において、先ずゴムパッキン230が開口部210のパッキン取付部211に取り付けられてから、ゴムワッシャ251aを介してLCDパネル235が取り付けられる。その後、ゴムワッシャ252a、コイルバネ253およびゴムワッシャ254を介して振動感知棒240が取り付けられている。そして、その後に、ゴムワッシャ255と鉄ワッシャ256が介在されて、フランジナット257が植込ボルト202に螺合されることにより、ゴムパッキン230、LCDパネル235および振動感知棒240が前棒2Bの裏側に固定されている。

【0070】図7にはLCDパネル235の取付け用構造を示す。

【0071】LCDパネル235は、同図に示すように、LCDパネル本体（液晶表示パネル）236と該本体236の周囲に取り付けられた補強用の金棒237とから構成され、金棒237の左右に前記ボルト通し孔237a、237aが設けられている。

【0072】図8にはLCDパネル235のLCDパネル本体236に遊技動作中に映像表示される表示内容とその表示位置を示す。

【0073】LCDパネル本体236はその一部又は全体が透明な部材で作られていて、ゲーム時にはその中央には透明な3つの可変表示部としての可変表示窓11A、11B、11Cが現出される。

【0074】可変表示窓10の左方には賭け数表示部12（12a～12g）が映像表示され、それら各賭け数表示部12（12a～12g）には「5」、「10」、「15」、……の賭け数が映像表示される。

【0075】また、各賭け数表示部12（12a～12g）に映像表示される賭け数に対応する組合せ指定表示ラインa～gが映像表示される。

【0076】前記賭け数表示部12の下方にはスタートスイッチ表示部14が映像表示される。また、各可変表示窓11A、11B、11Cの下方にはストップ表示部15a～15cとストップスイッチ表示部25a～25cとが各一対ずつ映像表示される。

【0077】LCDパネル本体236の左方には完了表示部13Aが、上部中央には得点表示部13Bがそれぞれ映像表示される。また、右方上部には投入スイッチ表示部23と半端球表示部24が、その下には貯留数表示

部16が、さらにその下方には精算スイッチ表示部17がそれぞれ映像表示される。また、右方下部にはオート表示部18aとオートスイッチ表示部18bが映像表示される。さらに、その下方には取込スイッチ表示部27a~27eと取込数表示部19a~19eとが1対1に対応した状態で映像表示される。

【0078】図9にはLCDパネル本体236の構造を斜視図にて示す。

【0079】LCDパネル本体236は、図9に示すように、ドットマトリクス表示板236A(裏側)とマトリクススイッチ板236B(表側)とが重ね合わされた透明な合板となっており、その一側部には液晶表示制御手段として例示するLCDパネル制御装置236Cが取り付けられている。LCDパネル制御装置236Cは後述する制御装置800Aとともに、液晶表示制御手段を構成して、液晶表示素子が配設されたLCD(リキッドクリスタルディスプレイ)透明状態変化パネルからなるゲーム表示部10の表示の制御を行う。例えば、上記可変表示窓11A、11B、11Cの表示、賭け数表示部12a~12gの表示、及び、組合せ指定表示ラインa~gの表示などの制御を行う。

【0080】そして、前記ドットマトリクス表示板236Aには図8に示した各種表示等がドットマトリクス表示されるようになっていて。また、マトリクススイッチ板26Bには同図に示すX座標とY座標とで位置が確定されるマトリクス配置のスイッチ群がマトリクス配置されている。

【0081】ところで、上記LCDパネル235に表示されたスイッチ表示部14、17、23、25a~25c、27a~27e(図8)を押すということは、上記マトリクススイッチ板236Bを押すこととなり、その押したスイッチ表示部がいずれであるかがマトリクススイッチ表示板236BのX座標(0, 1, 2, ...)とY座標(0, 1, 2, ...)とで確定され、それに対応した制御がなされるようになっていて。

【0082】前記LCDパネル制御装置236Cは、液晶表示制御手段として例示する後述の制御装置800Aに、前記スイッチ表示部14、17、23、25a~25c、27a~27e(図8)のいずれかがオンされたという信号(SW ON信号)と、そのオンされたスイッチ表示部を特定するためのX座標信号およびY座標信号を送信するとともに、制御装置800A(後述)からのビデオ信号を受けてドットマトリクス表示板236Aに映像表示させる役割を果たす。

【0083】図10には、遊技装置1を構成するケース本体2A内から、回転ドラム装置50、制御装置800A、ターミナルボックス41、電源装置810等を取り出した分解斜視図を示す。

【0084】ケース本体2Aは、上板部2b、左右の側板部2c、2d、底板部25e、後板部2f、および前

下板部2gとによってその外郭が構成されている。ケース本体2A内の中段には上記ドラム載置台2aが設置されている。そして、上板部2bには上記球導入口1aが設けられ、後板部2fには上記こぼれ球回収口1cが設けられている。また、後板部2fの下端と底板部2eとの間に上記流出口1bが設けられている。

【0085】回転ドラム装置50は支持枠55と該支持枠55内に設置された可変表示ユニット51、52、53とこれら可変表示ユニット51、52、53の回転ドラム(ドラム)511、521、531に回転力を付与する3つのパルスモータ515、525、535と可変表示ユニット51、52、53の上部を覆うようにして取り付けられたこぼれ球侵入防止カバー54とを備えている。そして、図2に示すように、支持枠55の底板551の前側が所定角度($=\alpha^\circ$)起き上がった状態でドラム載置台2a上に設置されている。その設置された状態において、こぼれ球侵入防止カバー54が同図に鎖線で示すように回転ドラム装置50の上方を完全に覆い、貯留タンク43等からこぼれた球が回転ドラム装置50内に入らないように、こぼれ球回収口1cへ導いて島設備600裏側下方の回収樋601上へ回収させる役割を果たすようになっている。

【0086】制御装置800Aはケース本体2A内のドラム載置台2aの下側に取り付けられ、電源装置810はケース本体2A内の底板部2e上に設置されている。

【0087】ターミナルボックス41には、外部の管理装置に接続するための投入信号中継コネクタ412a、払出し信号中継コネクタ412b、役物(大、中、小)信号中継コネクタ412c、および組立時における検査用のドラム検査信号中継コネクタ412d、ドラム駆動信号中継コネクタ412eが設けられるとともに電源スイッチ411が取り付けられている。それら各中継コネクタ412a~412eの左方には1対1に対応させて、“投入”、“払出し”、“役物”、“ドラム停止”、“ドラム駆動”の文字の表示された表示プレート411a~411eが設置されている。そして、このターミナルボックス41はケース本体2Aの後板2fの内側に取り付けられている。

【0088】図11にはケース本体2内に収納される回転ドラム装置50の部分分解斜視図を示す。

【0089】ドラム支持枠55は底板部551と該底板部551の後端部に略垂直に起立した背板部552とから構成されている。

【0090】底板部551と背板部552には可変表示ユニット取付け用のボルト通し孔551a~551c、552a~552cがそれぞれ設けられ、底板部551の中央には中央の可変表示ユニット52の位置決めを行なう位置決め部551dが一对突設されている。底板部551の手前側端には凹状の配線基板挿入部553が設けられ、該配線基板挿入部553中の対向壁部には配線

基板挿入溝553aが形成されている。

【0091】可変表示ユニット51(52, 53)は左右一對の支持棒512, 513とこれら支持棒512, 513中にて回転自在に支持された回転ドラム511とから構成されている。

【0092】その一方の支持棒512は側板部512a、後板部512bおよび底板部512cを備え、側板部512aの内側中央には支軸514が突設されている。後板部512bの内側端の上段、中段および下段位置には側板部512aと平行に止着片部512dが設けられ、各止着片部512dにはねじ孔512eが形成されている。また、後板部512bには前記ドラム支持棒55の背板部552のボルト通し孔552aの位置と対応させてねじ孔512fが設けられ、底板部512cには前記ドラム支持棒55の底板部551のボルト通し孔551aの位置と対応させてねじ孔512gが設けられている。

【0093】もう一方の支持棒513は側板部513aと後板部513bとを備えている。側板部513aの中央には駆動源としてのパルスモータ515が設置され、パルスモータ515の回転軸515aの先端部には図12に詳しく示すように伝達片515bが突設されている。また、側板部513a内側の中央から離れた位置にはドラム位置検出器516が設置されている。また、後板部513bには前記ドラム支持棒55の背板部552のボルト通し孔552aの位置と対応させてねじ孔513cが設けられ、側板部513aには前記支持棒512の止着片部512dのねじ孔512eの位置に対応させてねじ孔513dが設けられている。

【0094】前記パルスモータ515およびドラム位置検出器516のリード線517は図12に示すように側板513aの内側ヘコードバインダ517aによって止着され、リード線517には図4に示すようにコネクタ517bが取り付けられている。

【0095】前記回転ドラム511は中央のボス部511aと該ボス部511aとアーム部511bを介して一体成形された筒状部511eとを備え、筒状部511eの外周には帯状の識別表示部材518が360°に亘って取り付けられている。前記ボス部511aは前記支軸514およびパルスモータ515の回転軸515aに嵌合されてパルスモータ515から回転動力を伝達されるようになっており、ボス部511a内には軸孔511fが形成されているとともに回転軸515aの伝達片515bと係合する嵌合溝511gが形成されている。

【0096】前記アーム部511bの1つには前記ドラム位置検出器516によって検出可能な検知片511dが突設されている。回転ドラム511の回転に伴い、検知片511dがドラム位置検出器516に検出されることによって回転ドラム511の回転が検出されるようになっている。

【0097】前記筒状部511eの両端部にはフランジ状部511h, 511iが設けられ、これらフランジ状部511h, 511iの間に前記識別表示部材518が取り付けられている。

【0098】前記識別表示部材518の表面には一定間隔ごとに「7」や「BAR」などの文字、「スイカ」や「レモン」や「ベル」の絵などの各種表示がなされている。

【0099】そして、回転ドラム511のボス部511aが支軸514およびパルスモータ515の回転軸515aに嵌合されて、回転ドラム511が支持棒512および513によって両側から支持されることにより、ユニット化された状態でドラム支持棒55上に設置されている。

【0100】ドラム支持棒55に可変表示ユニット51(52, 53)を取付ける際には図13に示すように支持棒513の後板部513bの内側に支持棒512の後板部513bが重ね合わされた状態で取り付けられている。

【0101】このようにして、ドラム支持棒55上に3つの可変表示ユニット51, 52, 53が一定間隔ずつ隔てた状態で設置されている。その場合に、中央の可変表示ユニット52は特にドラム支持棒55の底板551上の位置決め部551d-551d間に納まるように位置決めされた状態で設置されている。

【0102】配線基板554上には接続端子554a～554cと555dとが互いに導通状態に設置されており、接続端子554aには第1の可変表示ユニット51のパルスモータ515およびドラム位置検出器516のリード線517に取り付けられたコネクタ517aが、接続端子554bには第2の可変表示ユニット52のパルスモータおよびドラムセンサのリード線527に取り付けられたコネクタ527aが、接続端子554cには第3の可変表示ユニット53のパルスモータおよびドラムセンサのリード線537に取り付けられたコネクタ537aが、それぞれ接続されている。また、接続端子555dには制御装置800Aのリード線815に取り付けられた入出力コネクタ816が接続されている。

【0103】上記構成の配線基板554がドラム支持棒55の配線基板挿入部553の挿入溝553a中に横方向からスライド挿入されることによって、配線基板挿入部553中に設置されている。

【0104】図14には、遊技装置1の裏機構を説明図として示す。

【0105】遊技装置1の裏面上部には、予備球（払出し前の賞品球）を貯留する上タンク43が設置されている。この上タンク43内には、同タンク43内の予備球の量を検出して、その予備球の量が少なくなったときに、管理装置（図外）に予備球の不足信号を出して予備球の補給を要求するドッグセンサ431が設置されている。

る。また、この上タンク43内の下部にはピン432aを軸芯として図示省略の復帰ばねにより自由端側が上昇する方向への回動復帰力を付与された踏板レバー432が設置され、その直下には完了検出器433が設置されている。その踏板レバー432が上昇してそれを完了検出器433が検出すると、その検出信号が図外の管理装置に入力されて球の放出予定値が完了したことを知らされる。

【0106】上記上タンク43の下流側開口部に臨むようにして導出樋44が接続されている。この導出樋44はゆるやかに下り傾斜しながらUターンし、その流下端部にこれと連続するような形で、回収樋441と賞球放出樋442とが設置されている。

【0107】前記導出樋44の途中には該導出樋44中を流れる賞球を慣らす球慣らし443、444が設置されている。また、導出樋44の終端部近傍には賞球の排出が行なわれていることを検出する賞球排出検出器445と賞球排出を行なわせるソレノイド式の賞球排出装置（排出ソレノイド）446とが設置されている。また、回収樋441と賞球放出樋442との分岐路には回収樋441と賞球放出樋442のいずれの側へ球を流すかの切換えを行なうソレノイド式の球抜き切換装置（球抜き切換ソレノイド）447が設置されている。

【0108】回収樋441の下端部は島設備600の回収樋601（図2）上に開口し、賞球放出樋442の下端部は球出口21と連通している。賞球放出樋442の下流部にはオーバーフロー検出器448が設置されており、受皿20中に賞品球が一杯溜って賞球導出樋442中に下流部内にまで賞品球が溜ったときにそれがその検出器448に検出されて図示省略のオーバーフロー表示ランプなどが点灯してその状態を遊技者に知らせるようになっている。

【0109】遊技装置1の裏面上部の右端には割数設定器29aと打止めリセットピン差込み部29bが設けられている。

【0110】また、受皿20の下流側に設けられた球投入入口20bの上方にはソレノイド式の球投入口開閉装置（開閉ソレノイド）20cが設置されている。球投入口開閉装置20cは常時はその球投入口閉塞板20dが下降して球投入入口20bを閉じていて、球投入スイッチ表示部23（図1）が押されたときに作動して閉塞板20dが上昇することにより球投入入口20bが開放されるようになっている。

【0111】球投入入口20bに連通した状態で球導通樋20eが設けられ、球導通樋20eより下流側には球導通樋20e中を流下する遊技球の数を検出する貯留数検出器20fが設置されている。

【0112】図15には上記制御装置800Aの制御システムを示す。

【0113】図15において符号800を付して示すも

のは記憶数演算手段および超過量排出制御手段を各々構成する中央処理装置（CPU）である。

【0114】また、中央処理装置800からのアドレスデータバスに沿って読出し専用メモリたるROM810、記憶手段として例示する読出しと書込みが可能なメモリたるRAM811、ビデオディスプレイコントローラ（VDG）812、入力バッファ830、ラッチ回路860、サウンドジェネレータ820等が設置されている。

【0115】前記ROM810中には通常遊技や“大当たり”、“中当たり”、“小当たり”の各遊技のゲームプログラム、ゲーム前のシミュレーション表示プログラム、割数プログラムなどの固定データが記憶されている。RAM811には貯留数や賭け数などが必要に応じて記憶される。また、RAM811には停電時に備えて不揮発性メモリ813が接続されている。この不揮発性メモリ813には、電源が基準ボルト以下に下がったときにRAM811中の記憶データが記憶保持されるようになってい

る。

【0116】前記入力バッファ830には、図15に示すように、ドラム位置検出器516、526、536、割数設定器29a、リセット検出器29b、完了検出器433、排出検出器445、ドックセンサ431、貯留数検出器20f、オーバーフロー検出器447、図9に示すLCDパネル制御装置236cのマトリクススイッチ板のX座標の出力端子、Y座標の出力端子等ローパスフィルタ831を介して接続される。また、図9に示すLCDパネル制御装置236cのスイッチ信号端子と振動スイッチ244がローパスフィルタ831を介して中央処理装置800の割込入力（INT）端子に接続されている。

【0117】前記ビデオディスプレイコントローラ（VDG）812には図9に示すLCDパネル制御装置236cのビデオ信号端子に接続されている。

【0118】前記サウンドジェネレータ82にはアンプ821を介してスピーカ822が接続されている。

【0119】前記出力ラッチ回路860には、投入口開閉装置（開閉ソレノイド）20c、球抜き切換装置（球抜きソレノイド）447、排出装置（排出ソレノイド）446、ゲーム説明表示部28、第1～第3のパルスモータ515、525、535がドライバ861を介して接続されている。

【0120】上記制御システムは次のように作用する。

【0121】まず、電源が投入された遊技前の状態においては、ROM810中の固定データプログラムに基づき、中央処理装置（CPU）800からビデオディスプレイコントローラ812に表示指令信号が出され、その信号が図9のLCDパネル制御装置236cのビデオ信号端子に送られることにより、ゲーム表示部10としてのLCDパネル235全体に広告表示やシミュレーシ

ン表示が映しだされている。

【0122】この状態で受皿20中に遊技球が入れられてから投入スイッチ表示部23が押されると、その投入スイッチ表示部23からの球投入信号がローパスフィルタ831、入力バッファ830を介して中央処理装置800に入力される。その球投入信号入力に基づいて、中央処理装置800から効果音発生指令信号がサウンドジェネレータ820に送られ、アンプ821を介してスピーカ822から効果音が発せられる。と同時に、中央処理装置800からの出力ラッチ回路860に開出力信号が送られ、その開出力信号に基づきドライバ861を介して投入口開閉装置（開閉ソレノイド）20cが作動されて球投入口20b（図14）が開かれる。

【0123】球投入口20bが開かれると、その投入口20bから受皿20中の遊技球が球導通樋20e中に流入し、その流入した遊技球が貯留数検出器20fによって検出される。

【0124】その貯留数検出器20fからの検出信号がローパスフィルタ831、入力バッファ830を介して中央処理装置800に入力される。

【0125】その入力信号に基づき、中央処理装置800によりカウントが開始されるとともに、中央処理装置800からビデオディスプレイコントローラ812に表示指令信号が出されその信号が図9のLCDパネル制御装置236cのビデオ信号端子に送られてゲーム表示部10としてのLCDパネル235の表示がゲーム表示に変換される。

【0126】そして、前記そのカウント個数の記憶指令信号がRAM811に送られてそのカウント個数が貯留数として記憶される。と同時に、中央処理装置800から出力ラッチ回路860にそのカウント個数の表示指令信号が送られ、ドライバ861を介して貯留数表示部16にその貯留数が表示される。その場合に、その貯留数が所定数（例えば、750個）を超えた場合には、中央処理装置800からの指令により出力ラッチ回路860、ドライバ861を介して排出装置446が作動されてそれを超えた分の球が球出口21を介して受皿20中に返還され、RAM811中における貯留数記憶、貯留数表示部16の表示とも「750」に戻される。その返還個数は排出検出器445により検出され、その検出信号がローパスフィルタ831、入力バッファ830を介して中央処理装置800に入力されてカウントされて制御されている。

【0127】投入口20bから流入した遊技球の数が所定数（例えば、750個）以下で、貯留記憶数、貯留数表示部16の表示数とも「5」の倍数になっていないときには、中央処理装置800によってその半端球の数が算出され、その数が出力ラッチ回路860、ドライバ861を介して半端球表示部24に表示される。その半端球が、中央処理装置800からの指令に基づき排出装置

446が作動されることにより、球出口21を介して受皿20中に戻される。その戻された数は排出検出器445により検出され、全ての半端球が戻された時点で半端球表示部24が元の色彩に戻される。

【0128】前記ゲーム表示への変換により、ゲーム表示部10の中央が可変表示窓11A、11B、11Cとして透明な窓となり、その周りに、新たに賭け数表示部12（12a～12g）、組合せ指定表示ラインa～g、スタートスイッチ表示部14、ストップ表示部15a～15c、ストップスイッチ表示部25a～25c、完了表示部13A、得点表示部13B、投入スイッチ表示部23、半端球表示部24、貯留数表示部16、精算スイッチ表示部17、オート表示部18a、オートスイッチ表示部18b、取込スイッチ表示部27a～27eおよび取込数表示部19a～19eが映像表示される。

【0129】この状態では、遊技者により賭け数指定用の取込スイッチ表示部27a～27eが択一的に押されると、その押されたスイッチ表示部からのスイッチオン（SW ON）信号が割込（INT）端子を介して中央処理装置800に入力される。その入力信号に基づく中央処理装置800からの指令でスピーカ822から効果音が発せられるとともに、その賭け数がRAM811中に記憶される。また、中央処理装置800により、RAM811中に記憶されている貯留数からその賭け数が減算され、その減算された後の貯留数がRAM811中に記憶されるとともに、出力ラッチ回路860、ドライバ861を介してその新たな貯留数が貯留数表示部16に表示される。と同時に、中央処理装置800から出力ラッチ回路860に表示指令信号が送られ、ドライバ861を介してそれに対応する賭け数表示部12、組合せ表示ラインa～gの色彩が変化される。

【0130】この状態で、遊技者によってスタートスイッチ表示部14が押されると、そのスタートスイッチ表示部14からのスイッチオン（SW ON）信号が割込（INT）端子を介して中央処理装置800に入力される。その入力信号に基づき、中央処理装置800からの指令でスピーカ822から効果音が発せられるとともに、中央処理装置800から出力ラッチ回路860に作動指令信号が送られ、ドライバ861を介して第1～第3のバースモータ515、525、535が駆動されて第1～第3の回転ドラム511、521、531が回転されることにより、ゲーム表示部10の可変表示窓11A、11B、11C中の表示の変化が開始される。

【0131】バースモータ515、525、535の駆動開始後、所定時間経過すると、中央処理装置800から停止指令信号が出力ラッチ回路860に送られ、ドライバ861を介して第1～第3のバースモータ515、525、535が所定時間間隔で順に停止されることにより、第1～第3の回転ドラム511、521、531が停止されてゲーム表示部10の可変表示窓11A、1

1 B, 11 C中の表示の変化が停止される。ただし、パルスモータ515, 525, 535の駆動開始後所定時間経過前に遊技者によってストップスイッチ表示部15 a~15 cが押されたときにはそのスイッチ表示部のスイッチオン (SW ON) 信号がローパスフィルタ831、入力バッファ830を介して中央処理装置800に送られる。そのストップ信号に基づき、中央処理装置800からストップ指令信号が出力ラッチ回路860に送られ、ドライバ861を介してスイッチ表示部15 a~15 cが押された順序に従ってパルスモータ515, 525, 535が停止されることにより回転ドラム511, 521, 531が停止されて、ゲーム表示部10の可変表示窓11 A, 11 B, 11 C中の表示の変化が停止される。

【0132】このようにして、可変表示窓11 A, 11 B, 11 C中の表示の変化が停止されると、中央処理装置800によって、第1~第3のドラム位置検出器516, 526, 536からの検出信号をもとに第1~第3の回転ドラム511, 521, 531の停止角度位置が演算され、その演算結果とRAM811中の賭け数記憶とからROM810中に記憶されているいずれの賞態様に該当しているかが判定される。

【0133】その結果、賞態様に該当していないと判定されると、“外れ”として賞球排出は行なわれず、遊技者による上記通常のゲーム操作が繰り返されることとなる。

【0134】ゲーム結果として賞態様が発生していると判定された場合には、その発生した賞態様に応じて賞球排出数やその後のゲームの制御手順が決定される。

【0135】賞態様の種類としては“大当り (大役物)”, “中当り (中役物)”, “小当り (小役物)”, その他一般の“当り”があり、その各賞態様に応じた賞球排出プログラムや発生後のゲームの制御手順等のプログラムが固定データとしてROM810に記憶されているので、その固定データに従って賞球排出やその後のゲーム制御が行なわれる。

【0136】“大当り”は遊技者に最も多い利益状態を与えるもので、遊技者が賭けた賭け数に対応する指定表示ライン (a~g) 上に“大当り”を発生させる表示の組合せ (例えば、図16に示す「7, 7, 7」の組合せ) が揃ったときに発生する。この“大当り”の発生確率は、割数設定器29 aからの割数設定信号が中央処理装置800に送られ、それら割数がRAM811中に記憶されることによって定められている。その割数をもとに、中央処理装置800によって乱数処理 (演算処理) され、その発生確率に達したときに、中央処理装置800から、図17 (A) に示すように、出力ラッチ回路860に大当り用の作動判定信号が送られると、その時点から“大当り”が発生し易くなって、直ぐに、又は何回かの一般ゲームの後に“大当り”が発生することとな

る。この“大当り”のときには中央処理装置800からの指令信号に基づき出力ラッチ回路860、ドライバ861を介して表示ライン (a~g) のうちの該当表示ラインの色彩がさらに変化されて“大当り”の発生が明示される。また、中央処理装置800から効果音発生指令信号がスピーカ822から効果音が発せられる。そして、中央処理装置800からの指令で得点表示部13 Bに得点表示がなされるとともに、排出装置446が作動されて排出検出器445による排出管理の下に所定数 (例えば、90個) の賞球排出が行なわれる。

【0137】この“大当り”が発生すると、ROM810中の固定データに基づいて1回当りの賭け数としての取込み数が自動的に「5」とされてオート表示部18 aの色彩が変化される。そして、中央処理装置800からの指令に基づき、賭け数表示部12 Cおよび中段の組合せ指定表示ラインb-bの色彩が変化されて中段の組合せ指定表示ラインb-b上における表示の組合せのみ有効となる。この“大当り”の期間中においては、ゲームごとに、中段の組合せ指定表示ラインb-b上に所定の表示の組合せ (例えば、「JAC, JAC, JAC」の組合せ) が揃ったときに、中央処理装置800からの指令で得点表示部13 Bに得点表示がなされるとともに、所定数 (例えば、90個) の賞品球が与えられるようになる。しかも、この“大当り”の発生時には中央処理装置800から出力ラッチ回路860に、図17 (A) に示すように、Hレベルの大役物信号が送られるので、その所定の表示の組合せ (例えば、「JAC, JAC, JAC」の組合せ) が生じ易くなる。このようなボーナスゲームに、図17 (A) に示すように所定回数 (例えば、66回) 挑戦できることとなる。ただし、その所定回数が終了する以前にその“大当り”の期間中における遊技者の賞球獲得数 (実際に増えた分) が所定数 (例えば、4000個) に達したときには、図17 (A) に示すように、その時点で大役物信号がLレベルとなって、通常のゲーム状態に戻される。この“大当り”のゲーム時においても中段の組合せ指定表示ラインb-b上に所定の表示 (「JAC, JAC, JAC」) 以外の賞態様表示が揃ったときには得点表示部13 Bに得点表示がなされ、その賞態様に応じた数の賞品球が与えられる。

【0138】“中当り”は遊技者に二番目に多い利益状態を与えるもので、遊技者が賭けた賭け数に対応する組合せ指定表示ライン (a~g) に“中当り”を発生させる表示の組合せ (例えば、「BAR, BAR, BAR」および「☆, ☆, ☆」の組合せ) が揃ったときに発生する。この“中当り”の発生もRAM811中に記憶された割数に基づく中央処理装置800中での乱数処理 (演算処理) によりその発生確率が制御されており、中央処理装置800から、図17 (B) に示すように、中当り用の作動確定信号が出力ラッチ回路860に送られた後に発生し易くなる。この“中当り”が発生したときに

は、中央処理装置800からの指令信号に基づき、出力ラッチ回路860、ドライバ861を介して該当表示ライン（a～g）の色彩がさらに変化されて“中当り”の成立が明示される。と同時に、中央処理装置800から効果音発生指令信号が出されてスピーカ822から効果音が発せられる。そして、中央処理装置800からの指令で得点表示部13Bに得点表示がなされるとともに、排出装置446が作動されて排出検出器445による排出管理の下に所定数（例えば、90個）の賞球排出が行なわれる。

【0139】そして、この“中当り”の発生以後は、ROM810中の固定データに基づいて自動的に1回当りの賭け数としての取込み数が「5」となり、中央処理装置800からの指令に基づき賭け数表示部12C、中段の組合せ指定表示ラインb～bの色彩が変化されて中段の組合せ指定表示ラインb～b上における表示の組合せのみ有効となる。

【0140】この“中当り”の期間中においては、ゲームごとに、中段の組合せ指定表示ラインb～b上に所定の表示の組合せ（例えば、「JAC, JAC, JAC」の組合せ）が揃った場合に、中央処理装置800からの指令で得点表示部に得点表示がなされ、所定数（例えば、90個）の賞品球が与えられるようになる。しかも、この“中当り”の発生時には中央処理装置800から出力ラッチ回路860に、図17（B）に示すように、Hレベルの中役物信号が送られるので、その所定の表示の組合せ（例えば、「JAC, JAC, JAC」の組合せ）が生じ易くなる。このようなボーナスゲームに、図17（B）に示すように所定回数（例えば、15回）挑戦できることとなる。ただし、その所定回数が終了する以前にその“中当り”の期間中における遊技者の賞球獲得数（実際に増えた分）が所定数（例えば、1000個）に達したときには、図17（B）に示すように、その時点で中役物信号がLレベルとなってその“中当り”のゲーム状態が終了され通常のゲーム状態に戻される。この“中当り”のゲーム時においても中段の組合せ指定表示ラインb～b上に所定の表示（「JAC, JAC, JAC」）以外の賞態様表示が揃ったときにはその賞態様に応じた数の賞品球が与えられる。

【0141】“小当り”は遊技者に“大当り”や“中当り”のときのような継続的に利益でなく一回限りの上記ボーナスゲームへの挑戦の利益を与えるもので、遊技者が賭けた賭け数に対応する組合せ指定表示ライン（a～g）上に“小当り”を発生させる表示の組合せ（例えば、レモンの絵が3つ揃う表示の組合せ）が揃ったときに発生する。この“小当り”の発生もRAM811中に記憶された割数に基づく中央処理装置800中での乱数処理によりその発生確率が制御されており、中央処理装置800から、図17（C）に示すように、小当り用の作動確定信号が出力ラッチ回路860に送られた後に発

生し易くなる。この“小当り”が発生したときには、中央処理装置800からの指令信号に基づき、出力ラッチ回路860、ドライバ861を介して該当表示部（a～g）の色彩が変化されて“小当り”の成立が明示される。と同時に、中央処理装置800から効果音発生指令信号が出されてスピーカ822から効果音が発せられる。そして、排出装置446が作動されて排出検出器445による排出管理の下に所定数の賞球排出が行なわれる。この“小当り”が発生したときには、上記“大当り”のときに行なわれると同様のボーナスゲームに1回限り挑戦できる。“小当り”が発生すると、ROM810の固定データに基づいて自動的に賭け数としての取込み数が「5」となり、中央処理装置800からの指令に基づき賭け数表示部12C、中段の組合せ指定表示ラインb～bの色彩が変化されて中段の組合せ指定表示ラインb～b上における表示の組合せのみ有効となる。

【0142】この“小当り”発生後の最初の1回のゲームに限り、中央処理装置800から出力ラッチ回路860に、図17（C）に示すように、Hレベルの小役物信号が送られて中段の組合せ指定表示ラインb～b上に所定の表示の組合せ（例えば、「JAC, JAC, JAC」の組合せ）が揃い易く制御され、それが揃ったときに得点表示部13Bに得点表示がなされるとともに、排出装置446によって所定数（例えば、90個）の賞品球が与えられるようになる。

【0143】“小当り”の発生によって遊技者に与えられるボーナスゲームへのチャンスの利益はその1回限りでその1回が終了した後は中央処理装置800からの小役物信号がLレベルとなって、通常のゲームに戻される。

【0144】通常のゲーム中に、上記“大当り”、“中当り”、“小当り”以外の一般の賞態様が発生したときには、その都度、得点表示部13Bに得点表示がなされるとともに、その賞態様に応じた賞球排出が行なわれるが、特に上記のようなボーナスゲームによる利益は与えられない。

【0145】上記のように、“大当り”、“中当り”、“小当り”が発生して排出装置446により賞球排出が行なわれる場合に、RAM811中の貯留数記憶が所定数（例えば、750個）に達するまでは、賞球数をそれ以前の貯留記憶数に加算して新たな貯留記憶数としてRAM811中に記憶されると同時にその貯留記憶数が貯留記憶表示部16に表示される。そして、RAM811の貯留記憶数が所定数（例えば、750個）に達すると、中央処理装置800からの指令で球抜き切換装置447が作動されて図14に鎖線で示すように回収樋411側を閉塞して、それ以後排出される賞球は賞球排出検出器445により計数されながら賞球導出樋442中を流下して球出口21を介して受皿20中に溜まる。そして、受皿20中の賞品球が満杯となって賞球放出樋44

2中に溜まると、それがオーバーフロー検出器448に検出され、そのオーバーフロー検出信号が中央処理装置800に入力される。その検出信号の入力に基づき、中央処理装置800から賞球排出ストップ信号が出されて排出装置446が停止されてそのオーバーフローが解消されるまで賞球排出がストップされる。

【0146】上記ゲームの進行に応じてROM810中の固定データを基に中央処理装置800から表示指令信号が出され、出力ラッチ回路860、ドライバ861を介してその信号に応じたゲーム説明表示部（ドット表示部）28に表示される。

【0147】振動スイッチ244からの割込信号が中央処理装置800に入力されたときには、中央処理装置800から不正処理信号がビデオディスプレイコントローラ（VDG）812とラッチ回路860に送られて、ゲームが不能状態にされるとともに、ゲーム説明表示部28に不正表示がなされる。

【0148】遊技中に取込スイッチ表示部27a～27eをいちいち押して賭け数セットをするのが面倒なときには所望の取込スイッチ表示部（27a～27e）を押した後にオートスイッチ表示部18bを押せば、それらのスイッチ表示部操作によるセット信号がスイッチオン（SW ON）信号として中央処理装置800に送られ、それらの信号に基づく中央処理装置800からの指令によりその賭け数がRAM811中に記憶されるとともに、中央処理装置800からの指令が出力ラッチ回路860に送られ、ドライバ861を介してオート表示部16の色彩が変化される。それ以後は遊技者がもう一度オートスイッチ表示部18bを押してオート状態をリセットしない限り自動的にそのセットされた賭け数にてゲームが進行されることとなる。この自動取込み方式の採用により、賭け数の設定操作が簡略化され単位時間内におけるゲーム回数の増大が図られ、遊技者のゲームに対する煩わしさが回避される。

【0149】遊技者が精算したい場合には、精算スイッチ表示部17を押せば、そのスイッチオン（SW ON）信号が中央処理装置800に入力され、その入力信号に基づいて中央処理装置800から精算指令信号が出されてRAM811中に記憶されている貯留数と同数の球が排出装置446によって球出口21を介して受皿20中に戻される。と同時に、RAM811の貯留記憶数が「零」とされるとともにゲーム表示部10の表示が広告又はシミュレーション表示に戻される。

【0150】遊技中、上タンク43中の予備球の量が少なくなると、それがドックセンサ431によって検出され、その検出信号が中央処理装置800に入力される。その入力信号に基づき中央処理装置800から図外の中央管理装置に球不足信号が送られる。その球不足信号に基づき中央管理装置（図外）から計数器付補給装置703に補給指令信号が出されて補給樋700中の予備球が

計数器付補給装置703により計数されながら上タンク43中に満たされる。

【0151】計数器付補給装置703による計数が予定値を終了すると、その後は上タンク43への予備球の補給が停止される。その結果、上タンク43中の予備球が少なくなるとそれが完了検出器433により検出されると、その検出信号が中央処理装置800に送られ、その検出信号に基づき中央処理装置800により完了表示部13Aに完了の文字が映像表示され、それ以後のゲームはできない状態にされる。

【0152】その後、打止めリセットピン差込み部29bにリセットピン（図示省略）が差し込まれると、リセット検出器29bからリセット信号が中央処理装置800に送られ、中央処理装置800からの指令により計数器703に計数されながら上タンク43中に予備球が満たされ、図示省略の完了ランプが消灯される。そのリセットピンが打止めリセットピン差込み部29b中に差し込まれている間に割数設定器29aに図示省略のキーを所定深さに差し込んでそのキーを所定方向へ回せば、その割数設定器29aからの信号が中央処理装置800に入力されてRAM811中にその割数が記憶され、ゲーム可能な状態となる。

【0153】図18には遊技装置1に配設された電源系統のブロック図を示す。

【0154】この実施の形態における遊技装置1においては、交流24Vの主電源900からの電気をランプやソレノイド用電源901、パルスモータ用電源902、ロジック回路用電源903、蛍光灯用電源904などに変換して使い、蛍光灯用電源904から蛍光灯47に電気供給されるようになっている。

【0155】図19には図15の制御システムによって行なわれる遊技装置1のメイン処理の制御処理手順の一例を示す。

【0156】メイン処理が開始されると、まずステップR2において初期設定処理（イニシャライズ）が行なわれる。イニシャライズとしては、パワーオン処理、停電フラグの確認、当りの発生確率設定処理などがある。パワーオン処理はRAM811の読み書きを確認してからRAM811をクリアして行なう。停電フラグの確認は、パワーオン処理の後に不揮発性メモリ813の内容を読み込み、停電フラグが立っていれば、不揮発性メモリ813の内容をRAM811へ転送し、しかる後不揮発性メモリ813をクリアして行なう。当りの発生確率設定処理は打止めリセットピン差込み部29bに図示省略の打止めリセットピンを差し込むことにより、リセット検出器29b（図15）としてのリセットスイッチを継続的にオン状態にし、割数設定器29a（図1）へ図示省略の割数設定キー（例えば6種類、6段階の当り発生確率設定が可能）を差し込んで回すことによって割数を設定して行なう。その割数設定が終了していなければ

ゲームは不能状態にある。

【0157】上記ステップR2におけるイニシャライズの後、ステップR4に移行して入力処理が行なわれる。ここに、入力処理は図9に示すLCDパネル制御装置236Cからのスイッチオン（SW ON）信号、X座標側のスイッチオン（SW ON）信号、およびY座標側のスイッチオン（SW ON）信号の各入力の監視である。

【0158】ステップR4における入力処理の後、ステップR6に移行して球取込み処理が行なわれる。この球取込み処理の詳しい制御処理手順については後述する。

【0159】ステップR6における球取込み処理の後、ステップR8に移行してドラム処理即ち、ドラム511、521、531の回転・停止処理が行なわれる。

【0160】ステップR8におけるドラム処理の後にステップR10に移行してゲーム状態判定処理が行なわれ、ステップR12～R18の判定に移行される。

【0161】ステップR12においては通常のゲーム中であるか否かが判定され、通常のゲーム中であると判定されたときにはステップR20で通常ゲーム判定処理がなされそのままステップR28に移行し、通常のゲーム中でないと判定されたときにはステップR14に移行する。

【0162】ステップR14においては“大役物”、即ち“大当り”のゲーム中であるか否かが判定され、“大役物”のゲーム中であると判定されたときにはステップR22で大役物判定処理がなされてそのままステップR28に移行し、“大役物”のゲーム中でないと判定されたときにはステップR16に移行する。

【0163】ステップR16においては“中役物”、即ち“中当り”のゲーム中であるか否かが判定され、“中役物”のゲーム中であると判定されたときにはステップR24で中役物判定処理がなされてそのままステップR28に移行し、“中役物”のゲーム中でないと判定されたときにはステップR18に移行する。

【0164】ステップR18においては“小役物”、即ち“小当り”のゲーム中であるか否かが判定され、“小役物”のゲーム中であると判定されたときにはステップR26で小役物判定処理がなされてからステップR28に移行し、“小役物”のゲーム中でないと判定されたときにはそのままステップR28に移行する。

【0165】上記ステップRを経てステップR28に移行すると、該ステップR28において後で詳しく述べる不正処理①がなされた後、ステップR30に移行する。

【0166】ステップR30においては、外部端子への出力処理、即ち、賭け数の投入信号、賞球の払出し信号、役物発生信号（大、中、小）、ドラム停止信号およびドラムの駆動信号等が外部端子に出力される処理が行なわれる。

【0167】ステップR30において外部端子出力処理

が行なわれた後、ステップR32に移行して出力処理が行なわれる。

【0168】しかる後、ステップR34に移行して確率演算処理、即ち、割数に対する確率の演算処理がなされ。再びステップR4に戻って、ステップR4以下の処理が繰り返される。

【0169】上記メイン処理が行なわれている最中に適宜4つのステップR501～R506の割込み処理がなされる。

【0170】その第1の割込み処理ステップR501として行なわれるのは、停電処理である。この停電処理は停電が発生したときに貯留数や取込み数などRAM811中に記憶されているデータを不揮発性メモリ813に移し換えて記憶する処理であり、後で詳しく述べる。

【0171】第2の割込み処理のステップR502として行なわれるのは、検出器監視処理である。この検出器監視処理について後で詳しく述べる。

【0172】第3の割込み処理のステップR503として行なわれるのは、時間処理である。この時間処理は一定時間（割込み）ごとにフラグのリセットを行ない、メイン処理における時間単位を作る処理である。

【0173】第4のドラム回転監視処理は回転ドラム511、521、531が定常回転になったかどうかを判断する処理である。

【0174】第5のスイッチ割込処理はゲーム表示部10のいずれのスイッチ表示部が押されたかを判定してその押されたスイッチ表示部に対応した処理を行なう制御処理である。

【0175】第6の不正処理②は振動スイッチ244からの検出信号が中央処理装置800に入力されたときにそれに対応した処理を行なう制御処理である。

【0176】図20～図22には図19のメイン処理中において割込み処理として行なわれる検出器監視処理の制御手順の一例を示す。

【0177】検出器監視処理が開始されると、まずステップR100において賭け数がセットされて取込み終了フラグが「1」となっているか否かが判定され、取込み終了フラグが「1」となっていると判定されたときには図21のステップR144に移行し、「1」となっていないと判定されたときにはステップR102に移行する。

【0178】ステップR102においては球投入スイッチ表示部23が押されることによって球投入フラグが「1」となっているか否かが判定され、「1」となっていると判定されたときにはそのままステップR108に移行し、「1」となっていないと判定されたときにはステップR104に移行する。

【0179】ステップR104においては球投入スイッチ表示部23がオンされたか否かが判定され、オンされていないと判定されたときにはそのままステップR12

4に移行し、オンされたと判定されたときにはステップR106に移行する。

【0180】ステップR106に移行したときには、該ステップR106において球投入フラグが「1」にされてからステップR108に移行して、球投入口開閉装置（開閉SOL）20cが作動されて球投入口20bが開かれるとともに開閉装置フラグ（開閉ソレノイドフラグ）が「1」にされ、しかる後ステップR110に移行する。

【0181】ステップR110においては貯留数検出器20fがオンとなったか否かが判定され、オンとなったと判定されるとステップR112に移行し、オンとなっていないと判定されるとステップR116に移行する。

【0182】ステップR110からステップR112に移行したときには、該ステップR112において貯留数検出器20fによるカウントが行なわれるとともにそのカウント数が電磁カウンタ@に転送される。そして、そのカウント数が「750」以下で「5」の倍数（5n）でない半端球があるときにはその半端球数「a」が半端球表示部24に表示される。電磁カウンタ@は停電対策用のもので電磁カウンタ@には貯留数検出器20fによるカウント値が転送される。そして、その後、ステップR114に移行する。

【0183】一方、上記ステップR110からステップR116に移行したときには、該ステップR116において開閉装置フラグ（開閉ソレノイドフラグ）が「1」となっているか否かが判定される。その結果、開閉装置フラグ（開閉ソレノイドフラグ）が「1」となっていると判定されたときにはステップR118に移行し、「1」となっていないと判定されたときにはステップR124に移行する。

【0184】上記ステップR112からステップR114に移行したときには、該ステップR114において貯留数検出器20fによるカウント数が貯留可能な最高数の「750」に達したか否かが判定され、「750」に達していないと判定されたときにはそのままステップR124に移行し、「750」に達したと判定されたときにはステップR118に移行する。

【0185】ステップR114又はR116からステップR118に移行したときには、該ステップR118において球投入口開閉装置（開閉SOL）20cが停止されて球投入口20bが閉じられるとともに開閉装置フラグ（開閉ソレノイドフラグ）が「0」にされる。そして、球投入口開閉装置（開閉SOL）20cが停止された後に貯留数検出器20fによってカウントされた球数「b」が前記「a」に入れられるとともに取込み終了フラグが「1」にされてからステップR120に移行する。

【0186】ステップR120においては「b」が「0」より大であるか否かが判定され、「0」より大で

ないと判定されたときにはそのままステップR124に移行し、「0」より大であると判定されたときにはステップR122で賞球オーバーフラグが「1」になされるとともに電磁カウンタcへb個カウントされてからステップR124に移行する。

【0187】ステップR124においては上タンク43（図2）中の予備球が所定量以下に減ったことを検出するドックセンサ431がオンとなったか否かが判定され、オンとなっていないと判定されたときにはそのままステップR128に移行し、オンとなったと判定されたときにはステップR126で上タンク43に球が「1000」個補給されてからステップR128に移行する。

【0188】ステップR128においては排出検出器445がオンとなったか否かが判定される。その結果、排出検出器445がオンとならなかったと判定されたときには、ステップR136で球詰まりフラグが「1」にされるとともにオフフラグ（OFF・FG）が「0」にされて図19のメイン処理にリターンする。オフフラグは排出動作が可能であるか否かを識別させるもので、排出動作が可能ときにはオフフラグが「1」にされ、球詰まりで排出動作が不能のときにはオフフラグが「0」にされる。一方、ステップR128で排出検出器445がオンとなったと判定されたときには、オフフラグが「1」にされるとともに球詰まりフラグが「0」にされ、しかる後ステップR132に移行する。

【0189】ステップR132においては賞球フラグが「1」になっているか否かが判定され、「1」になっていると判定されたときにはステップR134に移行し、「1」になっていないと判定されたときにはステップR138に移行する。

【0190】その結果、ステップR134に移行したときには、該ステップR134においてRAM811中の貯留記憶数に賞球数が加算されその加算された新たな貯留記憶数がRAM811中に転送され、その新たな貯留記憶数から貯留可能な最高数である「750」を差し引いたものが「b」とされ、しかる後ステップR142に移行する。

【0191】ステップR132からステップR138に移行したときには、該ステップRにおいて賞球オーバーフラグが「1」になっているか否かが判定され、「1」になっていないと判定されたときにはその時点でリターン処理の終了に至り、「1」になっていると判定されたときにはステップR140で賞球オーバーフラグが「0」にされてからステップR142に移行する。

【0192】ステップR142においては上記ステップR118又はステップR134で設定された「b」が正であるか否かが判定され、正でないと判定されたときにはその時点でリターン処理の終了に至り、正であると判定されたときにはそのオーバーした分の賞球を受皿20中に排出すべく図22のステップR164に移行する。

【0193】図20のステップR100から図21のステップR144に移行したときには、該ステップR144においてオフフラグ（OFF・FG）が「1」になっているか否か、即ち、賞球の排出動作が可能であるか否かが判定される。その結果、オフフラグ（OFF・FG）が「1」になっていない、即ち、賞球の排出動作が不能であると判定されたときにはそのままステップR156に移行し、オフフラグ（OFF・FG）が「1」になっている、即ち、賞球の排出動作が可能であると判定されたときにはステップR146に移行する。

【0194】ステップR146においては精算フラグが「1」になっているか否かが判定され、「1」になっていると判定されたときにはそのままステップR150に移行し、「1」になっていないと判定されたときにはステップR148に移行する。

【0195】ステップR148においては精算スイッチ表示部17がオンされたか否かが判定され、オンされていないと判定されたときにはそのままステップR156に移行し、オンされたと判定されたときにはステップR150に移行する。

【0196】その結果、ステップR150に移行したときには、該ステップR150において精算フラグが「1」にされて球抜き切換装置（球抜き切換ソレノイド）447がオンにされて回収樋441（図7）が閉塞される。そして、球投入口開閉装置20cがオフされて球投入口20bが閉塞されるとともにオートスイッチ表示部18bのオートフラグ（AUTO・FG）が「0」にされてから、排出装置446がオンされて排出フラグが「1」にされ、しかる後、ステップR152に移行する。

【0197】ステップR152においては、排出検出器445によるカウント個数がRAM811中の貯留記憶数と同数であるか否かが判定され、同数でないとは判定されたときにはそのままステップR156に移行し、同数であると判定されたときにはステップR154に移行する。

【0198】ステップR154に移行したときには、該ステップR154において排出装置（排出SOL）446が停止（OFF）されて排出フラグと精算フラグが「0」にされる。そして、球抜き切換装置（球抜き装置SOL）447がオフされて賞球放出樋422側が閉塞されてからステップR156に移行する。

【0199】ステップR156においてはオートスイッチ表示部18bがオンとなっているか否かが判定され、オンとなっていないと判定されたときには図20のステップR124に移行し、オンとなっていると判定されたときにはステップR158に移行する。

【0200】ステップR158においてはオートフラグ（AUTO・FG）が「1」になっているか否かが判定される。その結果、「1」になっていないと判定された

ときには、ステップR162でオートフラグ（AUTO・FG）が「1」にされてから図20のステップR124に移行し、「1」になっていると判定されたときにはステップR160でオートフラグ（AUTO・FG）が「0」にされてから図20のステップR124に移行する。ステップR124に移行したときにはステップR124以下の制御手順が行なわれる。

【0201】図20のステップR142から図22のステップR164に移行したときには、該ステップR164において排出装置（排出SOL）446が作動（ON）されて排出装置フラグ（排出SOLフラグ）が「1」にされる。また、球抜き切換装置（球抜き切換SOL）447が作動されることにより回収樋441側が閉塞されて球が賞球導出樋442を介して受皿20中に排出されるようになる。

【0202】そして、次のステップR166に移行し、該ステップR166において排出検出器445による排出カウント数が「b」と等しくなったか否かが判定され、等しくなったと判定されたときにはステップR168に移行し、等しくなっていないと判定されたときにはステップR170に移行する。

【0203】その結果、ステップR168に移行したときには、該ステップR168において排出装置（排出SOL）446が停止（OFF）されるとともに、排出装置フラグ（排出SOLフラグ）と賞球フラグが「0」にされる。また、球抜き切換装置（球抜き切換SOL）447が停止（OFF）されてRAM811中の貯留記憶数が「750」とされ、しかる後、図20の2Fのところに移行して図19のメイン処理にリターンする。

【0204】一方、上記ステップR166からステップR170に移行したときには、該ステップR170においてオーバーフロー検出器448がオンとなっているか否かが判定される。その結果、オンとなっていないと判定されたときにはそのまま図20の2Fのところに移行してリターン処理の終了に至り、オンとなっていると判定されたときにはステップR172に移行して排出装置（排出SOL）446が停止（OFF）されるとともに排出装置フラグ（排出SOLフラグ）が「0」にされ、かつ、貯留数表示部16の表示が点滅された後、図20の2Fのところに移行してリターン処理の終了に至る。

【0205】図23には図19のメイン処理中における球取込み処理の制御手順の一例を示す。

【0206】球取込み処理が開始されると、先ずステップR200において、オートフラグ（AUTO・FG）が「1」になっているか否かが判定され、「1」になっていると判定されたときにはステップR202に移行し、「1」になっていないと判定されたときにはステップR208に移行する。

【0207】その結果、ステップR202に移行したときには該ステップR202においてスルーフラグ（TH

O・FG)が「1」になっているか否かが判定され、「1」になっていると判定されたときにはそのままステップR212に移行し、「1」になっていないと判定されたときにはステップR204に移行する。

【0208】ステップR204においては取込スイッチ表示部27a~27eのうちいずれかがオン(ON)となっているか否かが判定され、オンとなっていなければそのままステップR218に移行し、オンとなっていればステップR206に移行する。

【0209】その結果、ステップR206に移行したときには、該ステップR206において、そのオンされた取込スイッチ表示部(27a~27eのうちのいずれか)の取込み数がRAM811中の取込み数メモリ①に記憶されるとともに、スルーフラグ(THO・FG)とゲームを可能にさせるゲームフラグ(GAME・FG)が「1」にセットされ、しかる後、ステップR212に移行する。

【0210】そして、ステップR212でRAM811中の貯留数メモリから取込み数メモリ①が差し引かれたものが「d」とされた後、ステップR214に移行する。

【0211】ステップR214においては前記ステップR212で算出された「d」が負であるか否かが判定され、負であると判定されたときにはステップR220でゲームフラグ0とゲームフラグ1が「0」にされてゲーム不能状態にされ、そのままドラム処理に移行し、負でないと判定されたときにはステップR216に移行する。

【0212】ステップR216に移行したときには、該ステップR216において前記ステップR212で算出された「d」がRAM811中の貯留数メモリへ転送されるとともに取込み数メモリ①が電磁カウンタbへ転送され、かつ、ゲームフラグ0(GAME・FG0)が「1」にセットされ、しかる後、ステップR218に移行する。

【0213】ステップR218においてはRAM811中に記憶されている貯留数が「100」以下であるか否かが判定され、「100」以下でないと判定されたときにはそのままドラム処理に移行し、「100」以下であると判定されたときにはステップR222で取込み終了フラグが「0」にされ、かつ球投入鉤フラグが「1」にセットされてからドラム処理に移行する。

【0214】図24には図19のメイン処理中における不正処理の制御手順の一例を示す。

【0215】不正処理①が開始されると、まずステップR300で開閉装置フラグ(開閉SOLフラグ)が「1」であるか否かが判定され、「1」であると判定されたときにはそのままステップR304に移行し、「1」でないと判定されたときにはステップR302に移行する。

【0216】ステップR302においては貯留数検出器20fにおける球の移動があるか否かが判定され、球の移動があると判定されたときにはステップR308で不正フラグ①が「1」にセットされてそのまま図19のメイン処理の外部端子出力処理に移行し、球の移動がないと判定されたときにはステップR304に移行する。

【0217】ステップR304においては排出装置フラグ(排出SOLフラグ)が「1」であるか否かが判定され、「1」であると判定されたときにはそのまま外部端子出力処理に移行し、「1」でないと判定されたときにはステップR306に移行する。

【0218】ステップR306においては排出検出器445における球の移動があるか否かが判定され、球の移動がないと判定されたときにはそのまま外部端子出力処理に移行し、球の移動があると判定されたときにはステップR308で不正フラグ①が「1」にセットされてから図19のメイン処理の外部端子出力処理に移行される。

【0219】上記ステップR308において不正フラグ①が「1」にセットされたときには不正が取り除かれた時点で復帰される。

【0220】図25には図19のメイン処理中において割込処理として行なわれる不正処理②の制御処理手順を示す。

【0221】不正処理②が開始されると、まず、ステップR350で振動スイッチ244がオン(ON)となったか否かが判定され、オンとなったと判定されたときにはステップR352で不正フラグ①が「1」にセットされ、さらに次のステップR354でゲーム表示部10へ不正表示がなされてから図19のメイン処理の外部端子出力処理に移行し、オンとなっていないと判定されたときにはそのまま図19のメイン処理の外部端子出力処理に移行する。不正フラグ②が「1」にセットされたときには不正が取り除かれた時点で復帰される。

【0222】図26、図27には図19のメイン処理中において割込処理として行なわれるスイッチ割込処理の制御処理手順を示す。

【0223】同図において、スイッチ割込処理が開始されると、まず、ステップR400においてゲーム表示部10の現在の表示パターンから参照スイッチテーブルが設定される。

【0224】ここに、表示パターンについて説明すると、ゲーム中における表示パターン1とゲーム開始前の表示パターン2とがある。これらのうちの表示パターン1はゲーム表示部10の表示がゲーム可能に状態になっているときの表示で、ゲーム表示部10に表示されている各種スイッチ表示部がスイッチとして有効に働く状態にある。このときには、スイッチテーブル(マトリクススイッチ板236B)の状態が図28の説明図(考え方を示す)に示すようになっている。即ち、各スイッ

チ表示部の位置に対応する箇所がマトリクススイッチ板236BのX座標とY座標とで指定される部分の「01」～「09」、「0A」～「0C」のデータ部分となっている。そして、それらの符号で指定されたマトリクススイッチ板236Bの箇所がスイッチとして有効に働き、他の箇所（「0, 0」データとなっている）はスイッチとして有効に働かないようになっている。一方、表示パターン2はゲーム開始前においてゲーム表示部10の表示が広告表示やシミュレーション表示等になっていて、未だ、ゲームが不能でゲーム表示部10に表示されている投入スイッチ表示部23を除いて各種スイッチ表示部がスイッチとして有効に働かない状態にある。このときには、スイッチテーブル（マトリクススイッチ板236B）の状態が図29の説明図（考え方のみを示す）に示すようになっている。即ち、マトリクススイッチ板236BのX座標とY座標とで指定される投入スイッチ表示部23と対応する部分（図面には表われていない）を除いて全ての部分が「0, 0」のデータになっていていずれの箇所もスイッチとして機能しえないようになっている。

【0225】上記ステップR400では、現在の表示パターンがいずれの表示パターンになっているかが判定され、それに応じてスイッチテーブルが設定されるようになっている。

【0226】そして、次のステップR402でオンスイッチ（ONSW）のX、Y座標に対応するSWデータの読み込みが行なわれる。その読み込みの結果を基に、中央処理装置800によってステップR404～R426の各判定が行なわれる。

【0227】その結果、ステップR404において「スイッチ（SW）データ＝1」であると判定されたときにはステップR428で取込スイッチ（SW5）のフラグが「1」に設定されてから図19のメイン処理にリターンする。

【0228】ステップR406において「スイッチ（SW）データ＝2」であると判定されたときにはステップR430で取込スイッチ（SW10）のフラグが「1」に設定されてから図19のメイン処理にリターンする。

【0229】ステップR408において「スイッチ（SW）データ＝3」であると判定されたときにはステップR432で取込スイッチ（SW15）のフラグが「1」に設定されてから図19のメイン処理にリターンする。

【0230】ステップR410において「スイッチ（SW）データ＝4」であると判定されたときにはステップR434で取込スイッチ（SW20）のフラグが「1」に設定されてから図19のメイン処理にリターンする。

【0231】ステップR412において「スイッチ（SW）データ＝5」であると判定されたときにはステップR436で取込スイッチ（SW25）のフラグが「1」に設定されてから図19のメイン処理にリターンする。

【0232】ステップR414において「スイッチ（SW）データ＝6」であると判定されたときにはステップR438で球投入スイッチ（SW）のフラグが「1」に設定されてから図19のメイン処理にリターンする。

【0233】ステップR416において「スイッチ（SW）データ＝7」であると判定されたときにはステップR440でスタートスイッチ（SW）のフラグが「1」に設定されてから図19のメイン処理にリターンする。

【0234】ステップR418において「スイッチ（SW）データ＝8」であると判定されたときにはステップR440でストップスイッチ（SW1）のフラグが「1」に設定されてから図19のメイン処理にリターンする。

【0235】ステップR420において「スイッチ（SW）データ＝9」であると判定されたときにはステップR444でストップスイッチ（SW2）のフラグが「1」に設定されてから図19のメイン処理にリターンする。

【0236】ステップR422（図23（B））において「スイッチ（SW）データ＝A」であると判定されたときにはステップR446でストップスイッチ（SW3）のフラグが「1」に設定されてから図19のメイン処理にリターンする。

【0237】ステップR424において「スイッチ（SW）データ＝B」であると判定されたときにはオートスイッチ（SW）のフラグが「1」に設定されてから図19のメイン処理にリターンする。

【0238】ステップR426において「スイッチ（SW）データ＝C」であると判定されたときには精算スイッチ（SW）のフラグが「1」に設定されてから図19のメイン処理にリターンする。

【0239】図30には図19のメイン処理中において割込み処理として行なわれる停電処理の制御手順について説明する。

【0240】停電処理が開始されると、ステップR501でRAM811中の貯留数メモリ、変数b、割数、および停電フラグの記憶が不揮発性メモリに転送され、しかる後メイン処理にリターンされる。

【0241】この停電処理により、停電時にはRAM811中のデータが不揮発性メモリに記憶され、再び電源が投入された時点で停電前の状態に再生されるようになっているので、停電によるメモリの消失が回避される。

【0242】また、上記電磁カウンタa、b、cのそれぞれの値より遊技者の球数を知ることができるので停電が長引いて停電が回避される以前に遊技をやめたいような場合にあっては不都合は生じない。

【0243】この実施の形態においては停電に対する対策として不揮発性メモリと電磁カウンタの2段階のバックアップ方式を採用している。

【0244】この実施の形態に係る遊技装置1によれ

ば、ゲーム表示部10としてマトリクススイッチ板236Bの内蔵されたLCD(リキットクリスタルディスプレイ)パネル235を使用しているの、ゲーム上必要な各種スイッチをゲーム表示部10に配置することができ、スイッチを別個に設ける場合に比べて部品点数の減少が図れる。また、スイッチの配置の自由度が増す。

【0245】また、LCDパネル235のドットマトリクス表示板236Aにはゲーム表示ができる他、ゲーム前には広告表示やシミュレーション表示ができるなど、必要に応じた多種多様な表示ができ、遊技性と興趣が増加される。

【0246】また、LCDパネル235は透明であるので、特に開口窓を設けなくてもLCDパネル235の裏側に設置された回転ドラム装置50の可変表示内容が透明なLCDパネル235を通して良く見える。

【0247】また、LCDパネル235に強く押される力が加わったときには該パネル235が後退して不正検出用振動スイッチ244によって検出され、ゲーム表示部28に不正表示がなされてゲーム不能状態にされるとともに、その検出信号が中央管理室に届くようになってるので、遊技者によりLCDパネル235が叩かれたり強く押されたときには直ちに不正が検出されることとなり、LCDパネル235が破損したりするような大事の発生を防止することができる。

【0248】また、遊技者が受皿20に球を入れてから球投入スイッチ表示部23を押すと所定数(例えば、750個)を上限として球の取込みが行なわれ、その取込まれた球数が制御装置800の貯留数メモリに貯留数として記憶されるとともに、その貯留数が貯留数表示部16に可視表示され、その貯留数メモリに記憶がある限り連続して遊技を行なうことができるので、遊技者の遊技上の操作が容易となる。

【0249】そして、遊技の進行に伴って賞態様が連続的に発生し、貯留数記憶が所定数(例えば、750個)を超えた場合にあっては、その所定数を超えた分の球数が実球にて遊技者に与えられ、常にその所定数を限度として貯留記憶されているので、次のような効果を奏する。

【0250】即ち、賭け数の自動取込み方式による場合は特に、貯留数記憶があることを条件に賭け数(取込み数)が貯留記憶数に対して自動的に加減算されて賭け数の取込み動作が終了されるので、受皿の実球をその都度取込む従来のものに比べて取込み終了までの時間が著しく短縮され、遊技に移行するまでの遊技者の煩が著しく軽減される。

【0251】また、貯留数制限付きの取込み方式の効果として、その貯留数制限を超えたときにその超えた分の実球が賞として遊技者に払い出されるという醍醐味がある。また、精算スイッチ表示部17が操作されて遊技者の獲得した遊技球数が払い出される場合に、最大限その

貯留数記憶制限(例えば、750個)分だけ払い出されるだけなので、貯留数記憶制限がない場合に比べ精算時の払い出し時間が軽減される。無制限の場合は、特に、打ち止めになったときにおける精算のように貯留記憶数が多いときにその精算の所要時間が長くなるという不都合がある。

【0252】この実施の形態によれば、賭け数の取込み方式として、手動取込み方式と自動取込み方式とがある。ここに、手動取込み方式は遊技に賭ける球数を1回の遊技ごとに遊技者がセットしてやる方式で、賭け数を頻繁に変えたいときなどに有効である。一方、自動取込み方式は、一旦遊技に賭ける球数(取込釦スイッチ表示部27a~27eの設定)をセットすると、遊技者によるその設定の変更がなされない限り、1回の遊技の終了ごとに直ちにそのセットされた球数が自動的に取り込まれて同じ賭け数の連続遊技が可能とされるものである。

【0253】従って、遊技者は、必要に応じてその手動取込み方式と自動取込み方式とを使い分けすることができる。そして、特に、同じ賭け数で連続して遊技を行ないたい場合に自動取込み方式にセットすれば、賭け数設定が自動的に行なわれる分操作が簡略化され単位時間内におけるゲーム回数の増大が図れるとともに遊技者に対する賭け数セット操作の煩が回避される。

【0254】さらには、貯留記憶数が一定値(例えば、100個)より減少した場合にあっては、受皿20内の球を再度取り込むように作動する。

【0255】このように、この遊技装置にあっては、常に貯留記憶数が必要かつ十分な状態に保てるように作動する。

【0256】[発明の第2の実施の形態] 上記発明の第1の実施の形態ではゲーム表示部が遊技者によって叩かれたり強く押された場合の不正を電氣的に検出して処理することとしているが、この実施の形態では機械的に検出して処理することとしている。

【0257】この実施の形態における遊技装置の構成はその不正を機械的に検出して処理する部分を除いては上記発明の第1の実施の形態の遊技装置と構成が同じであるので、重複説明はできるだけ避けその異なる構成部分について説明することとする。

【0258】なお、その説明上、発明の第1の実施の形態と同じ構成部分が出てくるときには、発明の第1の実施の形態で用いたと同じ図面、符号を引用する。

【0259】図31には、この実施の形態における遊技装置の前ケース2BへのLCDパネル235の取付構造を分解斜視図にて示す。

【0260】開口部210の裏側上位置には同図に示すように巻取り式のシャッター装置201が設置されている。このシャッター装置201は、ケース201aと、該ケース201a中に回転自在に収納された巻取軸201bと、該巻取軸201bに巻取可能に取り付けられた

シャッター２０２と、前記巻取軸２０１ｂに対し、シャッター２０２をほぐす方向への回転力を付与する復帰用ばね（図示省略）と、前記巻取軸２０１ｂに巻回されたシャッター２０２の巻取り用紐２０１ｃとから構成されている。

【０２６１】開口部２１０の左右裏側には前記シャッター装置２０１のシャッター２０２を案内する横断面コ字状の案内部材２０６、２０６が相互に対向した状態で設置されている。

【０２６２】また、開口部２１０の裏側左右位置には、相互に対向した状態で上下一対ずつラックギヤ２０８が設置されるとともにスプリングフック２０３が設置されている。開口部２１０裏側の一方の側にはＬＣＤパネルストッパ２０５が設置されている。

【０２６３】前ケース２Ｂの開口部２１０裏側のパッキン取付部２１１（図３２）に取付けられるゴムパッキン２３０は図２６に示すように内側が開口部となった矩形状に形成され、その前側には図３２に示すようにパッキン取付部２１１に外嵌し得る嵌合溝２３１が周囲全体に亘って設けられている。

【０２６４】ＬＣＤパネル２３５は前記ゴムパッキン２３０と略同じ大きさの矩形に作られていて、その裏側の四隅位置にそれぞれねじ穴２３８が設けられている。

【０２６５】振動感知棒２４０は、左右の枠板２４１、２４１と、これら枠板２４１、２４１の外側にはそれぞれ移動距離調整用歯車群が設置されている。

【０２６６】これら歯車群は、前ケース２Ｂの裏側に取り付けられた前記ラック２０８にそれぞれ常時噛合するピニオンギヤ２４２、２４２と、これらピニオンギヤ２４２、２４２の間にあってピニオンギヤ２４２、２４２とそれぞれ噛合するとともに相互に噛合し合う一対の伝達歯車２４３、２４３とから構成されている。そして、左右のピニオンギヤ２４２は前記左右の枠板２４１、２４１間に横架された回転軸２４４の両側にそれぞれ固定されていて、それら左右のピニオンギヤ２４２、２４２相互間に回転力の伝達がなされるようになっている。

【０２６７】また、左右の枠板２４１、２４１の前側の上下位置には取付用ブラケット２４１ａが設けられ、各ブラケット２４１ａにはＬＣＤパネル２３５のねじ穴２３８の位置と対応させてボルト挿通孔２４１ｂが設けられている。

【０２６８】また、一方の枠板２４１の前端部外側には前カバー２Ｂに設けられた前記ＬＣＤパネルストッパ２０５と接触し得る移動規制片２４７が設けられている。

【０２６９】そして、先ず、前ケース２Ｂの開口部２１０の裏側のパッキン取付部２１１にゴムパッキン２３０が取り付けられる。しかる後、ボルト挿入孔２４１ｂとねじ孔２３８とが合わされ、前記ボルト挿入孔２４１ｂ中にボルト２４６が通されて前記ねじ穴２３８に螺合されることによって、ＬＣＤパネル２３５と振動感知棒２

４０とが一体化される。その後、シャッター巻取紐２０１ｃが引張られることによって図２７に示すようにシャッター２０２が巻き上げられた状態にされてから、前記４つのピニオンギヤ２４２が前記４つのラックギヤ２０２にそれぞれ噛み合わされた状態にされて振動感知棒２４０の移動規制片２４７が開口部２１０裏側のＬＣＤパネルストッパ２０５に接触した状態に配置される。その後、前ケース２Ｂ裏側のスプリングフック２０３と振動感知棒２４０の枠板２４１、２４１に設けられたスプリング取付孔２４１ｃとの間に復帰用スプリング２０７が張設される。

【０２７０】このようにして、前ケース２Ｂの開口部２１０裏側にＬＣＤパネル２３５が設置された状態にあっては、振動感知棒２４０およびＬＣＤパネル２３５は復帰用スプリング２０７の張力により前進されてゴムパッキン２３０の背面に接触した状態にあり、かつ、シャッター２０２の自由端（先端）がＬＣＤパネル２３５の上端に当接して巻き取られたままの状態に維持されている。

【０２７１】この状態で、遊技者によって、ＬＣＤパネル２３５が強く叩かれたり押されたりすると、ＬＣＤパネル２３５が振動感知棒２４０と一緒に後退される。その後退距離が所定距離以上になると、シャッター２０２の先端がＬＣＤパネル２３５の上端から外れてガイドレール２０６の案内溝に沿って下降し開口部２１０を閉塞した状態となる。

【０２７２】このように、ＬＣＤパネル２３５が強く叩かれたり押されるなどの不正が発生したときには、開口部２１０がシャッター２０２によって閉塞されることによって、ゲーム不能な状態となる。

【０２７３】このようにして、シャッター２０２が閉まった状態となったときには、前カバー２Ｂを開けてから、シャッター巻取用紐２０１ｃを引張れば、シャッター２０２が巻き上げられ、ＬＣＤパネル２３５および振動感知棒２４０が復帰用スプリング２０７によって前進復帰される。それによって、再びゲーム可能な状態となる。

【０２７４】遊技者によってＬＣＤパネル２３５のいずれの部分が叩かれたり押された場合であっても、前記移動距離調整用歯車群（２４２、２４３）の働きによってＬＣＤパネル２３５および振動感知棒２４０が部分的に偏ることなく均等に後退されるとともに、復帰時にも均等に復帰される。

【０２７５】この実施の形態における遊技装置１によれば、特にＬＣＤパネル２３５が強く叩かれたり押されたりしたときには、上記機械的な構成によって、ＬＣＤパネル２３５が後退して開口部２１０がシャッター２０２によって閉じられてゲーム不能な状態となる。機械的な構成のため、メンテナンスが容易である。また、ＬＣＤパネル２３５のいずれの部分が叩かれたり押された場合

においても移動距離調整用歯車群 (242, 243) の働きでLCDパネル235および振動感知棒240が部分的に偏ることなく均等に後退されるので、LCDパネル235の変形が防止できる。

【0276】その他の構成による効果は、発明の第1の実施の形態による効果と同様である。なお、賭数に対応するゲーム結果として有効とされる組合せ指定表示ラインの種類および数は上記実施の形態に限定されるものではなく、どのような種類や数であってもよい。また、上記実施の形態では遊技を行うに際し、遊技媒体として遊技球を投入することにより遊技を行っているが、遊技媒体としては上記実施の形態の遊技球に限定されるものではなく、遊技媒体を投入して遊技を行うものであれば、どのような遊技媒体であってもよい。

【0277】

【発明の効果】請求項1に係る発明によれば、複数のドラムの前面側に配設された液晶表示パネルにより、遊技の開始前においては、液晶表示より所定のシミュレーション表示が行われ、一方、遊技中においては、各ドラム表面の一部に対応した範囲の液晶が透光状態となって表示窓が形成されるようにしたので、より多彩且つ斬新で興趣の高い表示を行うことが可能となる。特に、遊技を行う遊技装置を選択している遊技者に対して、遊技開始前のシミュレーション表示により、当該遊技者の興味を十分に引き付けることができるとともに、遊技の興趣を向上させることができる。また、初心者等に対しても、そのシミュレーション表示により遊技に対する安心感を与えることができ、当該遊技装置で遊技を行うことを敬遠することを防止できる。請求項2に係る発明によれば、液晶表示パネルは、遊技中において、液晶表示により有効賞ラインを識別可能な所定のライン表示にて行うようにしたので、より斬新な方法で有効表示ラインを表示することができるとともに有効表示ラインを確実に認識させることができる。請求項3に係る発明によれば、液晶表示パネルは、特別の組合せ態様が表示された場合に、液晶表示により当該特別の組合せ態様が表示された有効賞ラインの色彩を変化させるようにしたので、特別の組合せ態様が表示されたこと、およびそれがどの有効賞ラインにおいて成立したのか、を確実に認識させることができる。

【図面の簡単な説明】

【図1】この発明の第1の実施の形態に係る遊技装置の全体斜視図である。

【図2】この遊技装置が遊技場の島設備に設置された状態を示す部分縦断側面図である。

【図3】前ケースへのLCDパネルの取付構造を示す背面側部分斜視図である。

【図4】前ケースのLCDパネルの取付構造を示す縦断側面図である。

【図5】前ケースのLCDパネルの取付構造を示す縦断

側面図である。

【図6】前ケースのLCDパネルの取付構造を示す部分分解斜視図である。

【図7】LCDパネルの取付構造を示す斜視図である。

【図8】LCDパネル本体への映像表示配置を示す斜視図である。

【図9】LCDパネル本体の構造を示す斜視図である。

【図10】遊技装置を構成するケース本体から回転ドラム装置、制御装置、ターミナルボックス、電源装置等を取り出した状態を示す部分斜視図である。

【図11】回転ドラム装置の分解斜視図である。

【図12】回転ドラムを支持する支持棒 (右側) の内側部分斜視図である。

【図13】回転ドラムを支持する支持棒をドラム支持棒へ取り付けけた状態を示す部分平面断面図である。

【図14】遊技装置の裏機構の説明図である。

【図15】制御装置の制御システム図である。

【図16】大当りを発生させる表示を例示する説明図である。

【図17】(A)は“大当り”の遊技のタイミングチャート、(B)は“中当り”の遊技のタイミングチャート、(C)は“小当り”の各遊技のタイミングチャートである。

【図18】遊技装置に配設された電源系統のブロック図である。

【図19】図15の制御システムによって行なわれる遊技装置のメイン処理の制御手順を示すフローチャートである。

【図20】検出器監視処理の制御手順を示すフローチャートの一部である。

【図21】検出器監視処理の制御手順を示すフローチャートの一部である。

【図22】検出器監視処理の制御手順を示すフローチャートの一部である。

【図23】球取込み処理の制御手順を示すフローチャートである。

【図24】不正処理①の制御手順を示すフローチャートである。

【図25】不正処理の制御手順を示すフローチャートである。

【図26】スイッチ割込処理の制御手順を示すフローチャートである。

【図27】スイッチ割込処理の制御手順を示すフローチャートである。

【図28】マトリクススイッチ板のゲーム中とゲーム前の表示パターン1を示す説明図である。

【図29】マトリクススイッチ板のゲーム中とゲーム前の表示パターンを示す説明図である。

【図30】停電処理の制御手順を示すフローチャートである。

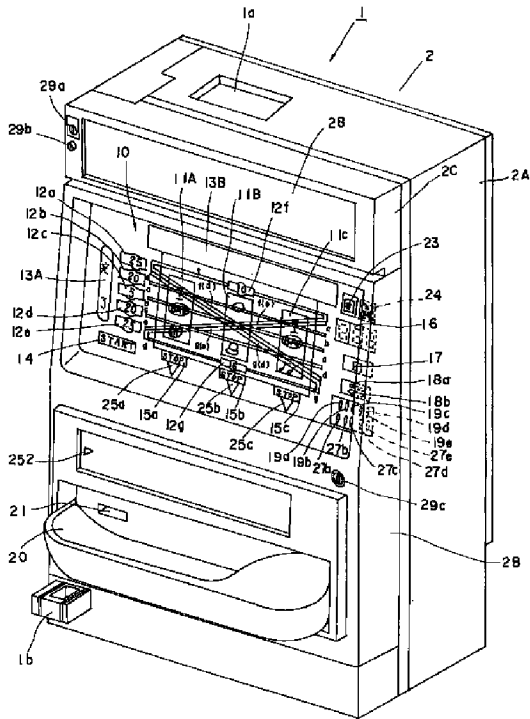
【図31】この発明の第2の実施形態に係る前ケースへのLCDパネルの取付構造を示す背面側分解斜視図である。

【図32】前ケースへのLCDパネルの取付構造を示す分解縦断側面図である。

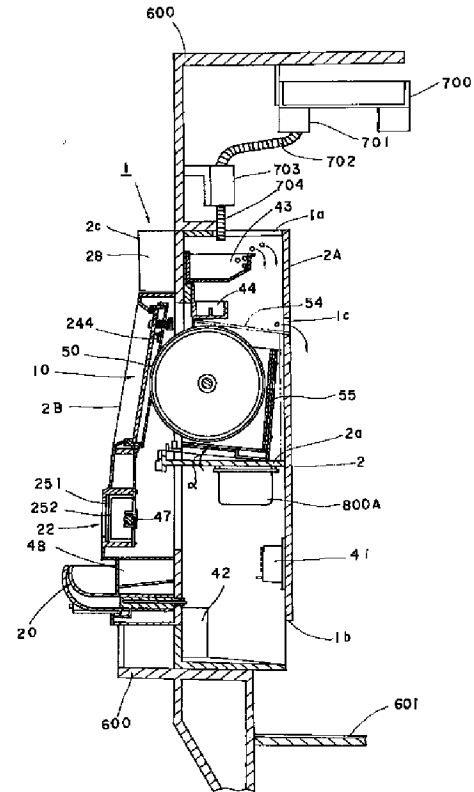
【符号の説明】

- 1 遊技装置
 11A, 11B, 11C 可変表示窓(表示窓)
 236 LCDパネル本体(液晶表示パネル)
 511, 521, 531 回転ドラム(ドラム)
 a~g 組合せ指定表示ライン(賞ライン)

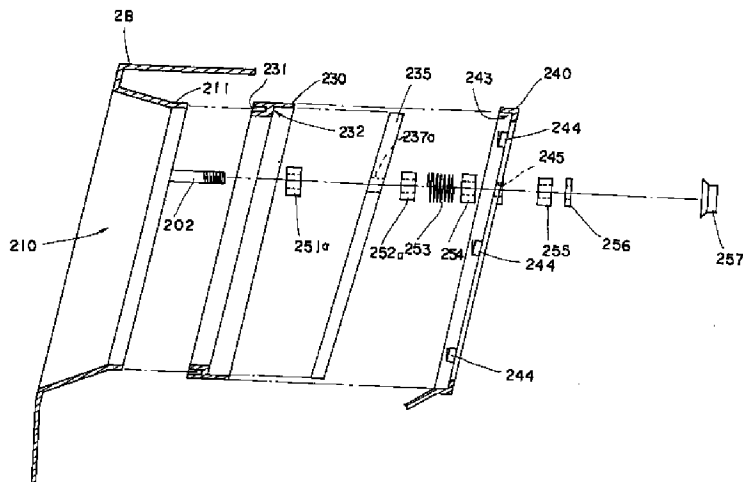
【図1】



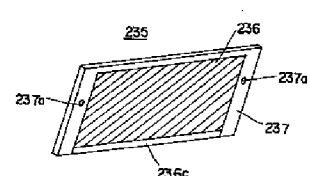
【図2】



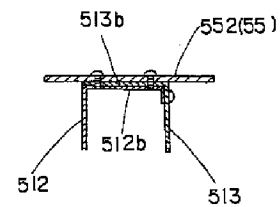
【図4】



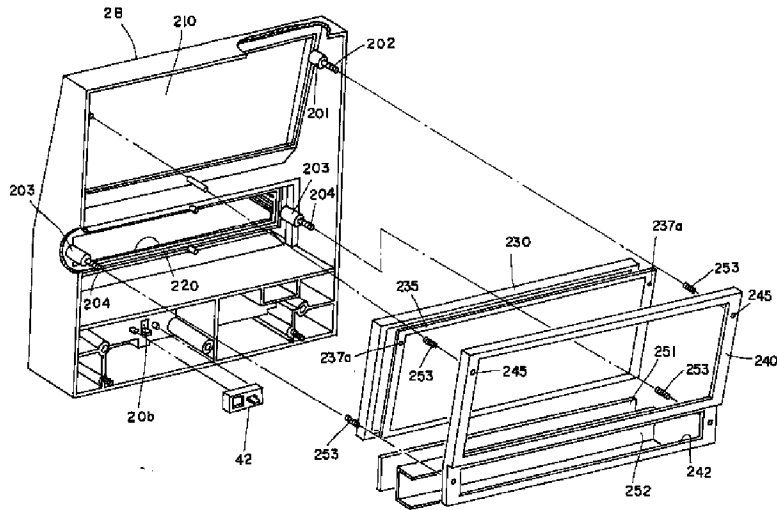
【図7】



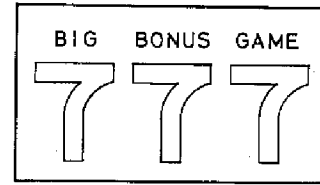
【図13】



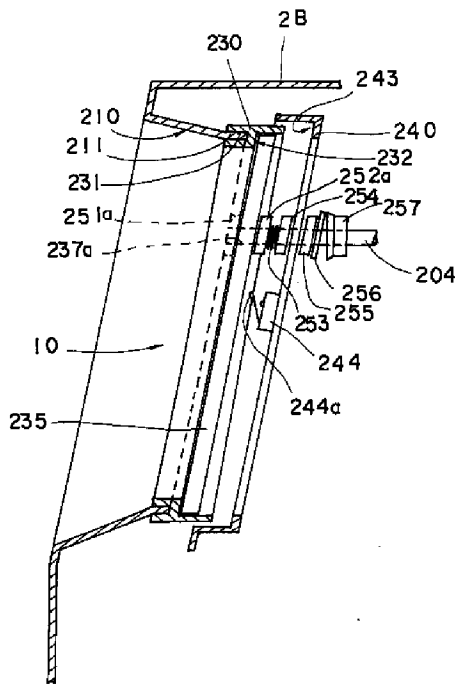
【図3】



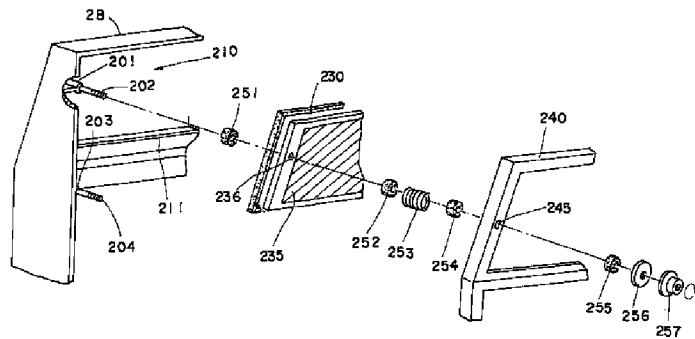
【図16】



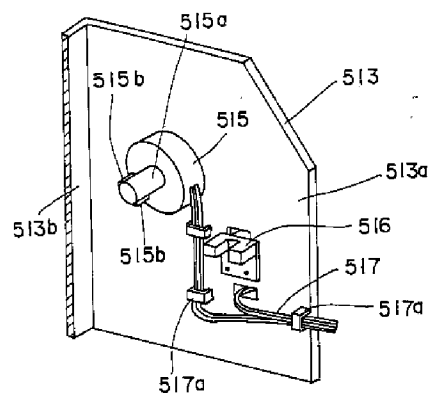
【図5】



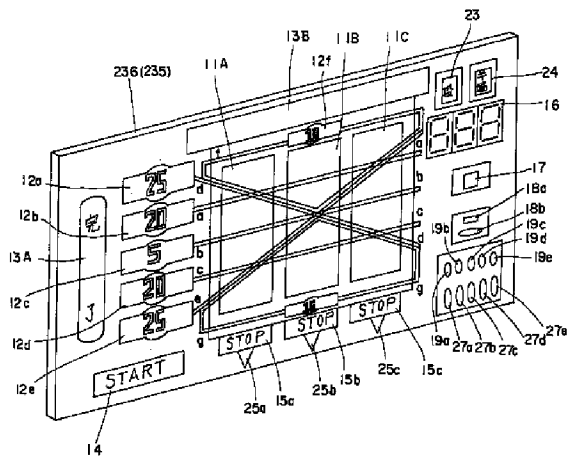
【図6】



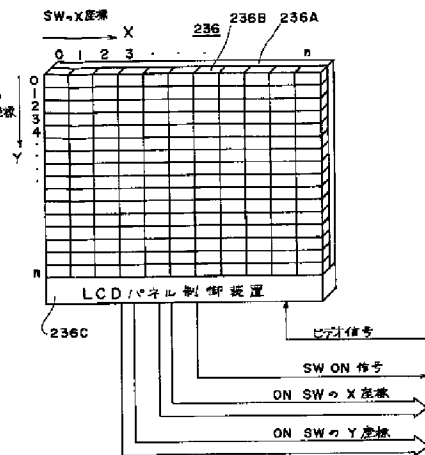
【図12】



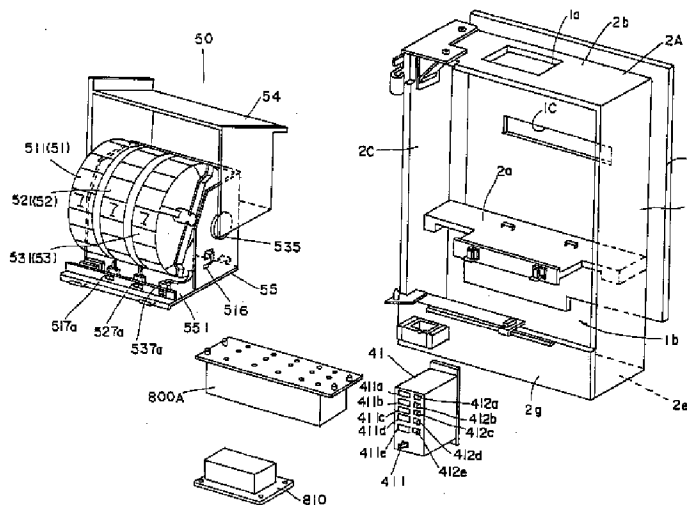
【图8】



【例 9】

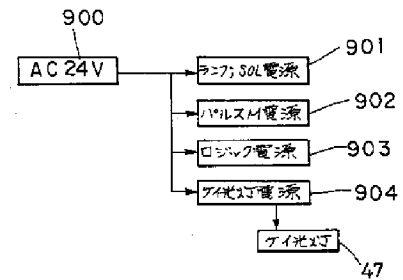
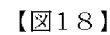


【☒10】

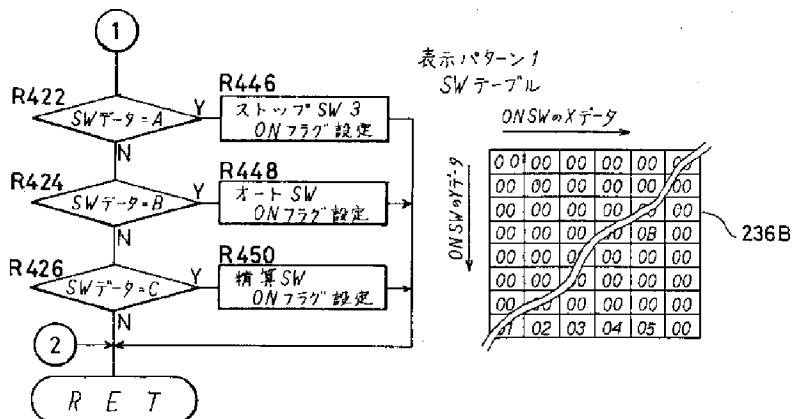
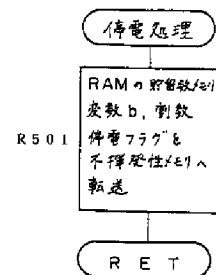


【图 27】

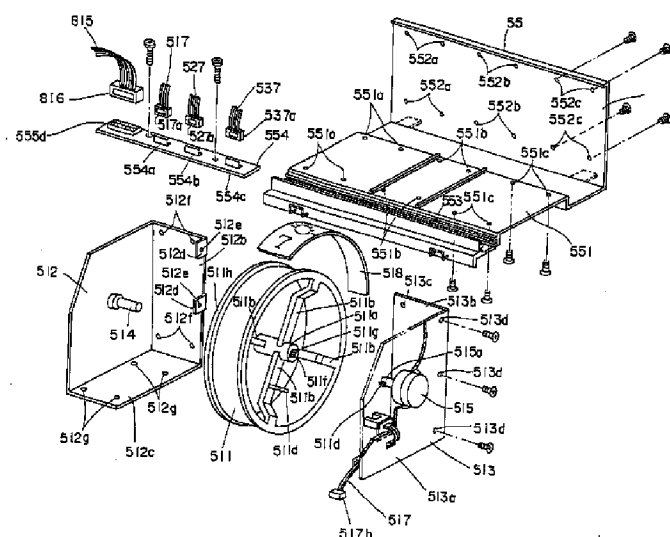
【图 28】



【図30】



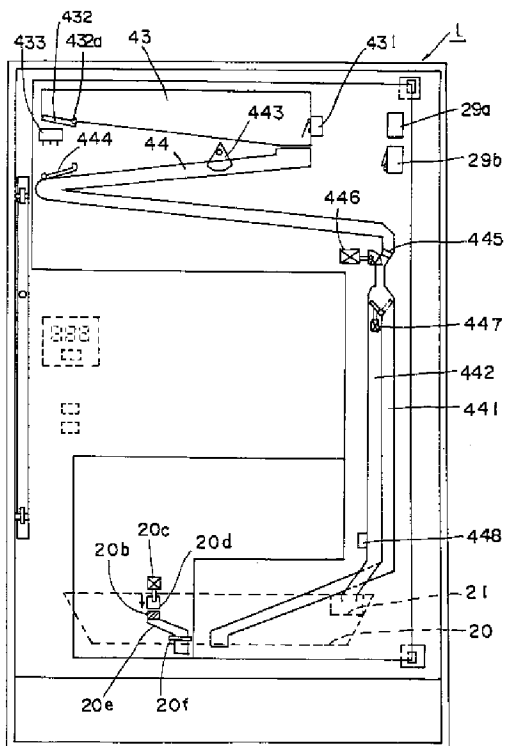
【例 1 1】



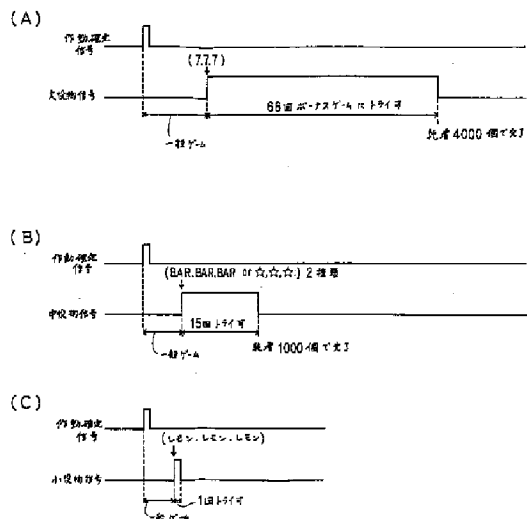
【图29】

表示パターン2
SWテーブル

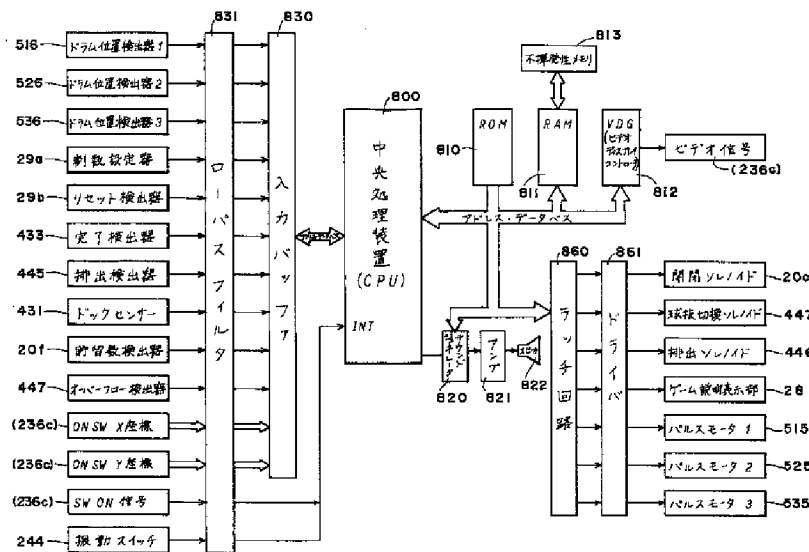
【图 14】



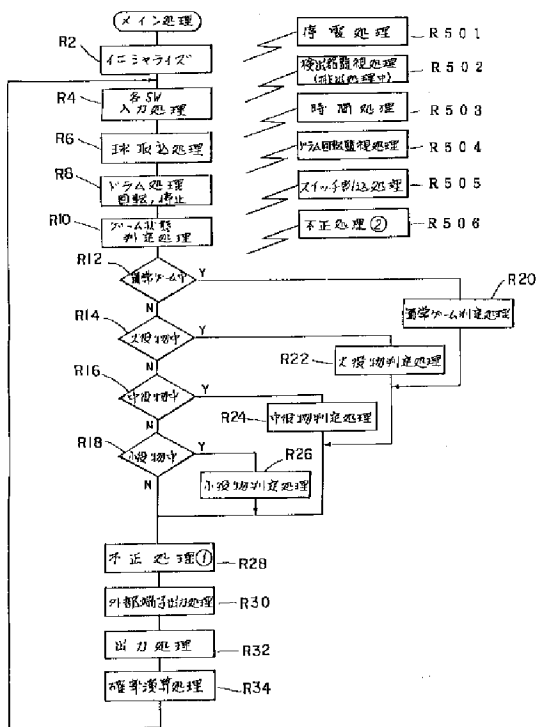
【图 17】



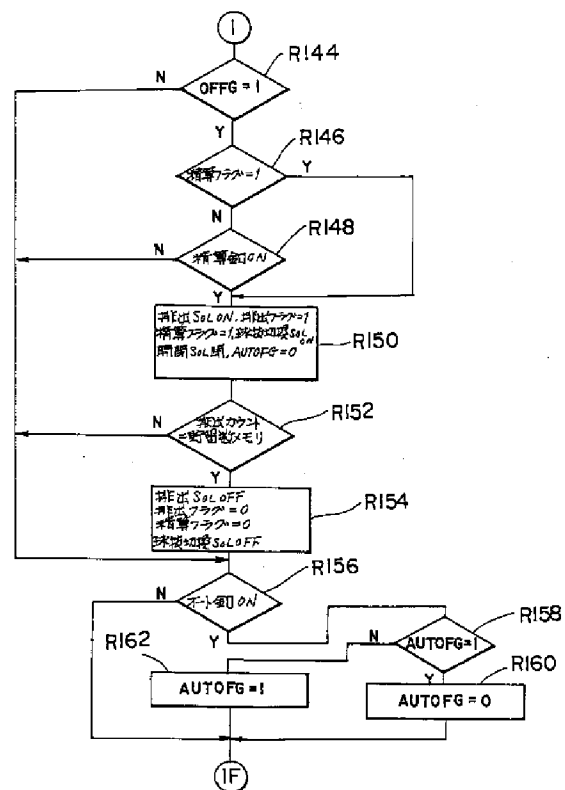
【图 15】

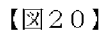


【图19】

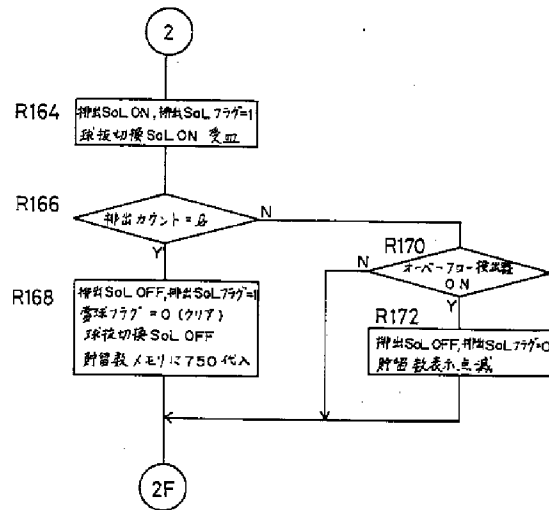


【例 21】

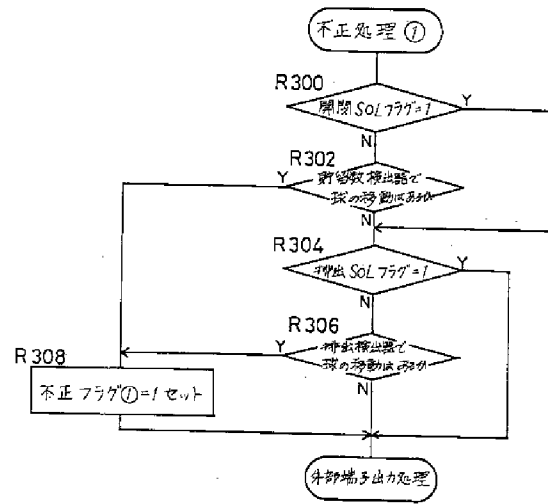




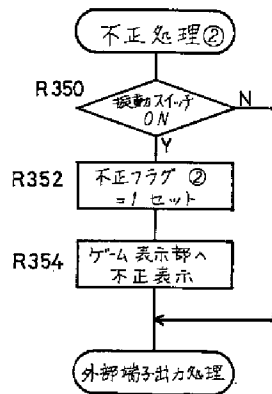
【図22】



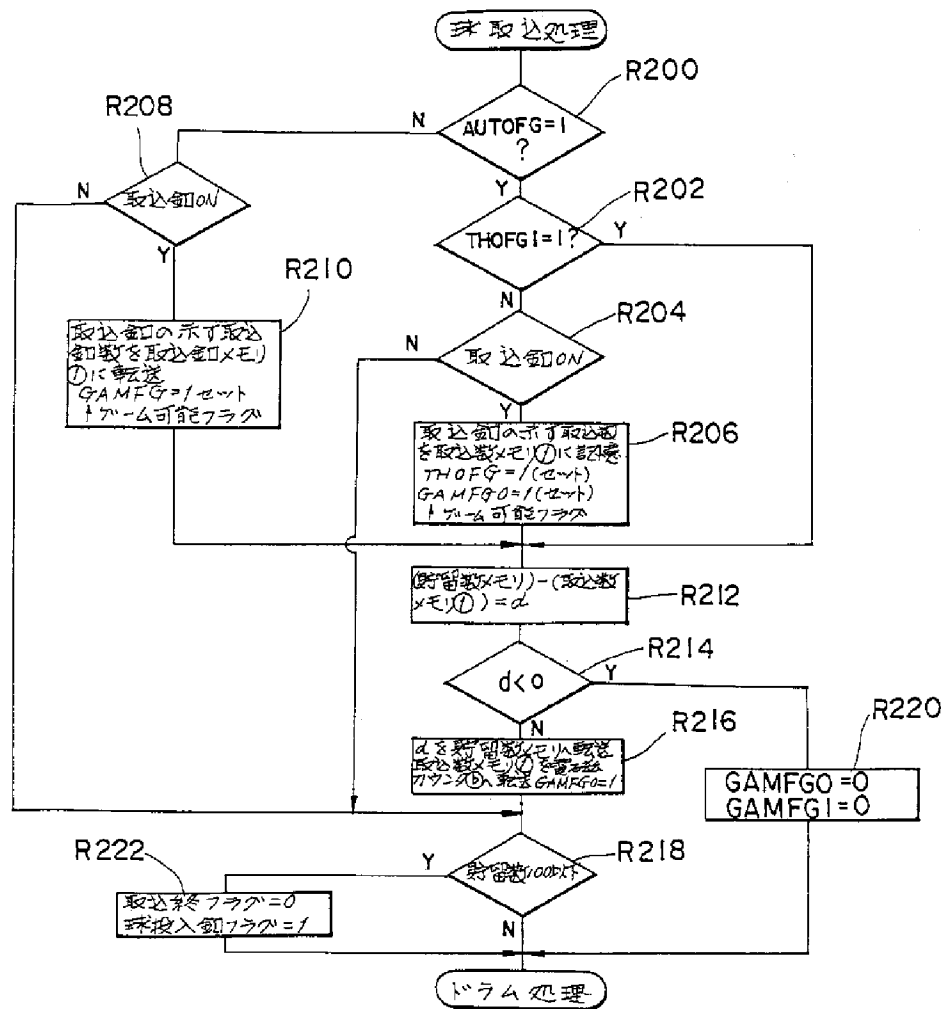
【図24】



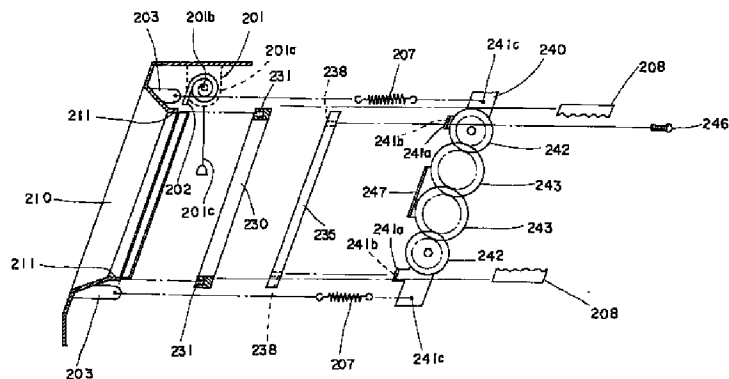
【図25】



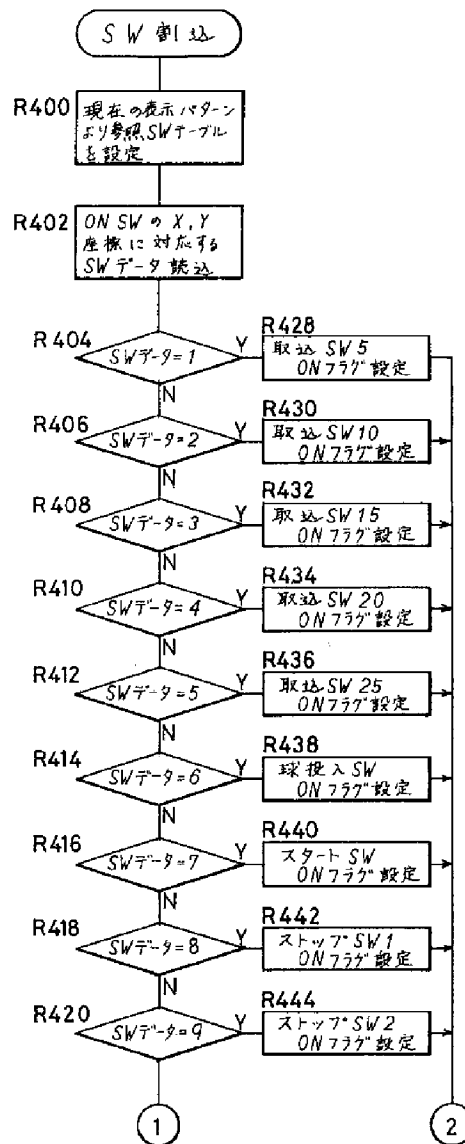
【図23】



【図32】



【図26】



【図31】

